



BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH II  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



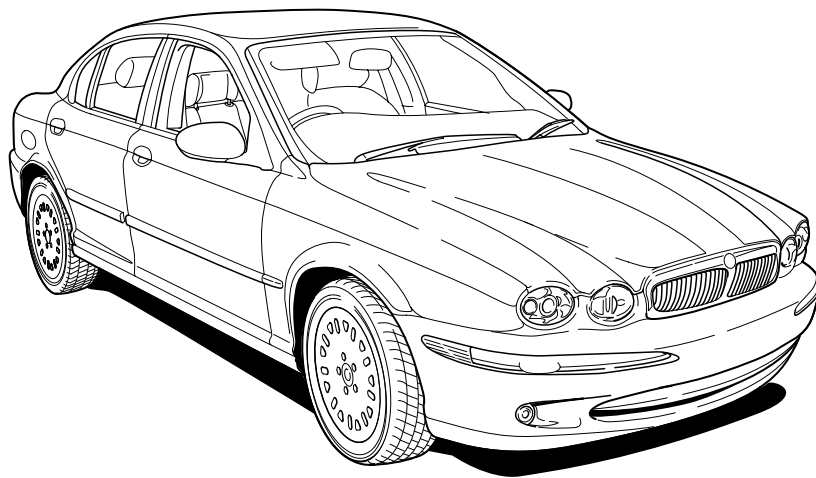
BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH  
THE QUEEN MOTHER  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



BY APPOINTMENT TO  
HIS ROYAL HIGHNESS THE PRINCE OF WALES  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY

# X-TYPE

## 2.0L/2.5L/3.0L Electrical Guide



2.5L & 3.0L – 2001.5 Model Year;  
2.0L – 2002.25 Model Year

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The following abbreviations and acronyms are used throughout this Electrical Guide:

|                           |                                             |
|---------------------------|---------------------------------------------|
| A/C                       | Air Conditioning                            |
| A/CCM                     | Air Conditioning Control Module             |
| ABS                       | Anti-Lock Braking                           |
| ABS/TC                    | Anti-Lock Braking / Traction Control        |
| APP SENSOR                | Accelerator Pedal Position Sensor           |
| APP1                      | Accelerator Pedal Position Sensor Element 1 |
| APP2                      | Accelerator Pedal Position Sensor Element 2 |
| AUTO                      | Automatic Transmission                      |
| B+                        | Battery Voltage                             |
| BANK 1                    | RH Cylinder Bank (Cylinders 1, 3, 5)        |
| BANK 2                    | LH Cylinder Bank (Cylinders 2, 4, 6)        |
| CAN                       | Controller Area Network                     |
| CKP SENSOR                | Crankshaft Position Sensor                  |
| CM                        | Control Module                              |
| CMP SENSOR / 1            | Camshaft Position Sensor / Bank 1           |
| CMP SENSOR / 2            | Camshaft Position Sensor / Bank 2           |
| D2B                       | Fiber Optic Network                         |
| DSC                       | Dynamic Stability Control                   |
| ECM                       | Engine Control Module                       |
| ECT SENSOR                | Engine Coolant Temperature Sensor           |
| EFT SENSOR                | Engine Fuel Temperature Sensor              |
| EGT SENSOR                | Exhaust Gas Temperature Sensor              |
| EOT SENSOR                | Engine Oil Temperature Sensor               |
| EVAP CANISTER CLOSE VALVE | Evaporative Emission Canister Close Valve   |
| EVAP CANISTER PURGE VALVE | Evaporative Emission Canister Purge Valve   |
| FTP SENSOR                | Fuel Tank Pressure Sensor                   |
| GECM                      | General Electronic Control Module           |
| GPS                       | Global Positioning System                   |
| HID                       | High Intensity Discharge                    |
| HO2 SENSOR 1 / 1          | Heated Oxygen Sensor – Bank 1 / Upstream    |
| HO2 SENSOR 1 / 2          | Heated Oxygen Sensor – Bank 1 / Downstream  |
| HO2 SENSOR 2 / 1          | Heated Oxygen Sensor – Bank 2 / Upstream    |
| HO2 SENSOR 2 / 2          | Heated Oxygen Sensor – Bank 2 / Downstream  |
| IAT SENSOR                | Intake Air Temperature Sensor               |
| ICE                       | In-Car Entertainment System                 |
| IMT VALVE / 1             | Intake Manifold Tuning Valve / Top          |
| IMT VALVE / 2             | Intake Manifold Tuning Valve / Bottom       |
| IC                        | Instrument Cluster                          |
| IP SENSOR                 | Injection Pressure Sensor                   |
| KS                        | Knock Sensor                                |
| LH                        | Left Hand                                   |
| LHD                       | Left Hand Drive                             |
| MAF SENSOR                | Mass Air Flow Sensor                        |
| MAN                       | Manual Transmission                         |
| MAP SENSOR                | Manifold Absolute Pressure Sensor           |
| N/A                       | Normally Aspirated                          |
| NAS                       | North American Specification                |
| PATS                      | Passive Anti-Theft System                   |
| PWM                       | Pulse Width Modulated                       |
| RH                        | Right Hand                                  |
| RHD                       | Right Hand Drive                            |
| ROW                       | Rest of World                               |
| SCP                       | Standard Corporate Protocol Network         |
| TCM                       | Transmission Control Module                 |
| TP SENSOR                 | Throttle Position Sensor                    |
| TP1                       | Throttle Position Sensor Element 1          |
| TP2                       | Throttle Position Sensor Element 2          |
| TURN                      | Turn Signal                                 |
| TV                        | Television                                  |
| V6                        | V6 Engine                                   |
| VEMS                      | Vehicle Emergency Message System            |
| VICS                      | Vehicle Information Control System          |
| VVT VALVE / 1             | Variable Valve Timing Valve / Bank 1        |
| VVT VALVE / 2             | Variable Valve Timing Valve / Bank 2        |
| +ve                       | Positive                                    |
| -ve                       | Negative                                    |
| -ve BUS                   | Central Junction Fuse Box Ground Bus        |



## Electrical Guide Format

This Electrical Guide is made up of two major sections. The first section, at the front of the book, provides general information for and about the use of the book, and information and illustrations to aid in the understanding of the Jaguar X-TYPE electrical / electronic systems, as well as the location and identification of components.

The second section includes the Figures, which are the basis of the book. Each Figure is identified by a Figure Number (i.e. Fig. 01.1) and Title, and is accompanied by a page of data containing information specific to that Figure.

It is recommended that the user read through the front section of the book to develop a familiarity with the layout of the book and with the system of symbols and abbreviations used. The Table of Contents should help to guide the user.

## Vehicle Identification Numbers (VIN)

VIN ranges are presented throughout the book in the following manner:

→ VIN 123456 indicates “up to VIN 123456”; VIN 123456 → indicates “from VIN 123456 on”.

## Jaguar X-TYPE Electrical System Architecture

### Power Supplies

The Jaguar X-TYPE electrical system is a supply-side switched system. The ignition switch directly carries much of the ignition switched power supply load. Power supply is provided via three methods: direct battery power supply, ignition switched power supply, and “Battery Saver” power supply. The “Battery Saver” power supply circuit is controlled via GECM (General Electronic Control Module) internal timer circuits. Refer to Figure 01.5 for circuit activation details.

### Fuse Boxes

The electrical harness incorporates a hard-wired Power Distribution Fuse Box in the engine compartment and a serviceable Central Junction Fuse Box in the front left-hand foot well. All fuses and relays (except the trailer towing accessory kit) are located in the two fuse boxes.

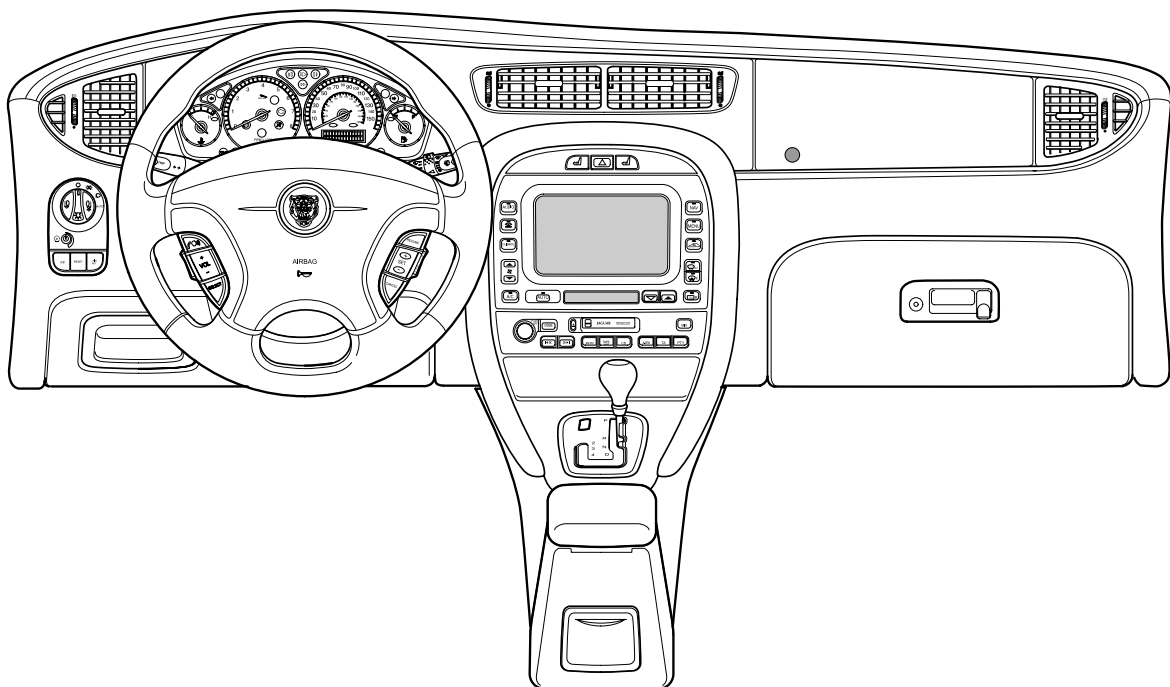
### Vehicle Networks

The Jaguar X-TYPE employs three different networks: a CAN (Controller Area Network) for high-speed powertrain communications, an SCP (Standard Corporate Protocol) network for slower speed body systems communications, and a D2B (Optical) Network for very high-speed “real-time” audio data transfer. The D2B Network is a fiber optic network with a gateway to the remaining vehicle networks via the Audio Unit (Radio Head Unit). Technician access to the three networks and the Serial Data Link is via the Data Link Connector.

### Ground Studs

Circuit ground connections are made at body studs located throughout the vehicle. There are no separate power and logic grounding systems; however, there are a certain number of components that use unique ground points.

**X-TYPE INSTRUMENT PANEL**





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## Figure and Data Page Layout

### Figure Pages

Each Figure represents a specific electrical system of the vehicle. The Figures are arranged numerically by system (**01 - Power Distribution, 02 - Battery; Starter; Generator, etc.**) with variations in the system identified by a numeral following a decimal point (**01.1, 01.2, etc.**). Refer to the **Table of Contents: Figures** for a complete list of the Figures.

The Figures **01 - Power Distribution** detail the distribution of power to each of the systems. Numbered reference symbols refer the user to a specific Figure and from a specific Figure back to the Power Distribution Figures. This method eliminates the need to include detailed Power Distribution information on each of the Figures. The reference symbols are defined on page 12.

Each Figure appears on a right-hand page with a corresponding Data page to the left. The Figure and Data pages are folding pages. The user must fold out both pages in order to access all the information provided.

### Data Pages

The Data page includes information to assist the user in identifying and locating components, connectors and grounds. This information is supplemented by the illustrations in this front section of the book.

When network data is required for the understanding of a particular circuit, the user is directed to the Appendix.










Most circuits that incorporate a control module include pinout information. The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. This information is provided to assist the user in understanding circuit operation and should be used FOR REFERENCE ONLY.















**NOTE:** In the examples on this page, an 'X' is used where a number would appear on an actual Figure.

## Reference Symbols

-  Battery power supply
-  Ignition switched auxiliary power supply (key I)
-  Ignition switched power supply (key II, III)
-  Ignition switched Battery Saver power supply
-  Engine Management System power supply
-  Figure number reference
-  Controller Area Network
-  Standard Corporate Protocol network
-  D2B network


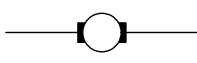
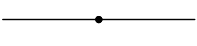
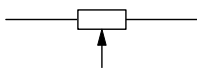
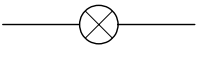
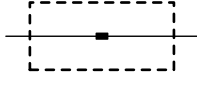
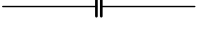
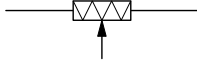
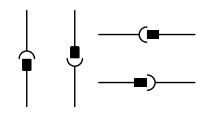
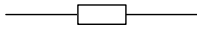

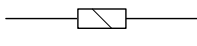
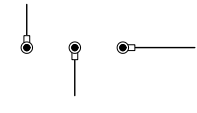
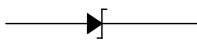
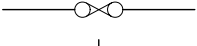
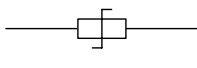
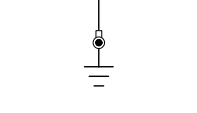
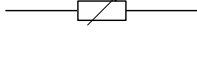
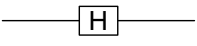
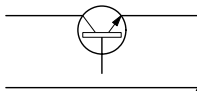



## Control Module Pin Symbols

-  Input
-  Output
-  Battery voltage
-  Power ground
-  Sensor/signal supply V \*
-  Sensor/signal ground \*\*
-  CAN network
-  SCP network
-  D2B network
-  Serial and encoded data

\* May also indicate Reference Voltage.

\*\* May also indicate Reference Ground or Logic Ground.  
Refer to Control Module Pin-Out Information.

## Wiring Symbols

- |                            |                                                                                     |                                                                                      |                                 |
|----------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| Splice                     |    |    | Motor                           |
| Simplified splice          |  |  | Potentiometer                   |
| Bulb                       |  |  | Power distribution box terminal |
| Capacitor                  |  |  | Pressure transducer             |
| Connector                  |  |  | Resistor                        |
| Diode                      |  |  | Solenoid                        |
| Eyelet and stud            |  |  | Suppression diode               |
| Fuse                       |  |  | Suppression resistor            |
| Ground                     |  |  | Thermistor                      |
| Hall effect sensor         |  |  | Transistor                      |
| Light emitting diode (LED) |  |  | Wire continued                  |
|                            |                                                                                     |  | Zener diode                     |



## Harness Codes

|    |                             |
|----|-----------------------------|
| AC | Climate Control             |
| AL | LH Side Airbag              |
| AR | RH Side Airbag              |
| BL | LH Rear Door                |
| BR | RH Rear Door                |
| CA | Cabin                       |
| EN | Engine                      |
| FB | Front Bumper                |
| FL | LH Front Door               |
| FR | RH Front Door               |
| FT | Fuel Tank                   |
| GC | Cooling Pack                |
| IL | Injector Rail               |
| IP | Instrument Panel            |
| JB | Junction Box                |
| LF | LH Front Wheel Speed Sensor |
| LR | LH Rear Wheel Speed Sensor  |
| LS | LH Front Seat               |
| NA | Navigation System           |
| PA | Pedals                      |
| PH | Telephone                   |
| RB | Rear Bumper                 |
| RC | Roof Console                |
| RF | RH Front Wheel Speed Sensor |
| RR | RH Rear Wheel Speed Sensor  |
| RS | RH Front Seat               |
| TL | Trunk Lid                   |
| TM | Trunk Main                  |
| VM | Vacuum Module               |
| VP | Vacuum Pump                 |

## Wiring Color Codes

|   |        |     |                           |
|---|--------|-----|---------------------------|
| N | Brown  | O   | Orange                    |
| B | Black  | S   | Slate                     |
| W | White  | L   | Light                     |
| K | Pink   | U   | Blue                      |
| G | Green  | P   | Purple                    |
| R | Red    | BRD | Braid                     |
| Y | Yellow | BOF | Fiber optic (D2B Network) |

## Code Numbering

When numbering connectors, grounds and splices, Jaguar Engineering uses a three-position format: AC001, AC002, etc. Because space is limited in this Electrical Guide the codes have, in most cases, been shortened. Thus AC001-001 becomes AC1-1, AC002-001 becomes AC2-1, etc.



## Grounds

There may be up to three eyelets on one ground stud. A, B and C are used to indicate the position of the eyelet on the stud: A – first (bottom), B – second (middle), C – third (top). Two eyelet variations are used: a single eyelet and an eyelet pair. The single eyelet has a single ‘leg’, which is identified by an S; the eyelet pair has two ‘legs’, identified as L (left) or R (right).

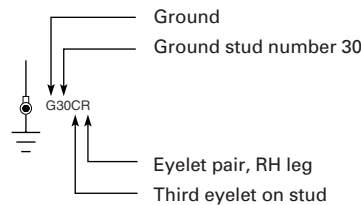
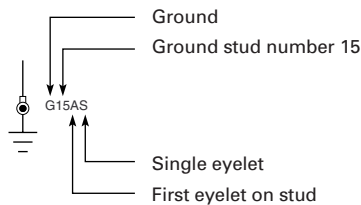


SINGLE EYELET



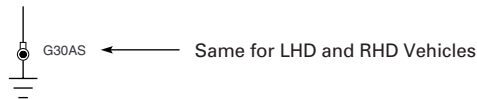
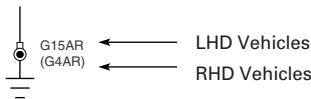
EYELET PAIR

EXAMPLE:



On figures where LHD and RHD circuits are combined and the ground designation differs from LHD to RHD, the RHD ground is shown in parentheses. If the ground designation is the same for LHD and RHD, only one ground designation is used.

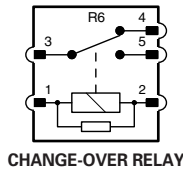
EXAMPLE:



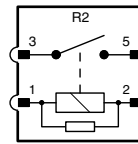
## Relays

All relays are located in the Power Distribution Fuse Box and the Central Junction Fuse Box. Relays do not have a separate relay connector (base). All relays use the ISO pin numbering system (1, 2, 3, 4, 5). Each relay in the vehicle is identified by a unique “R” number.

EXAMPLE:



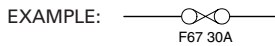
CHANGE-OVER RELAY



NORMALLY OPEN RELAY

## Fuses

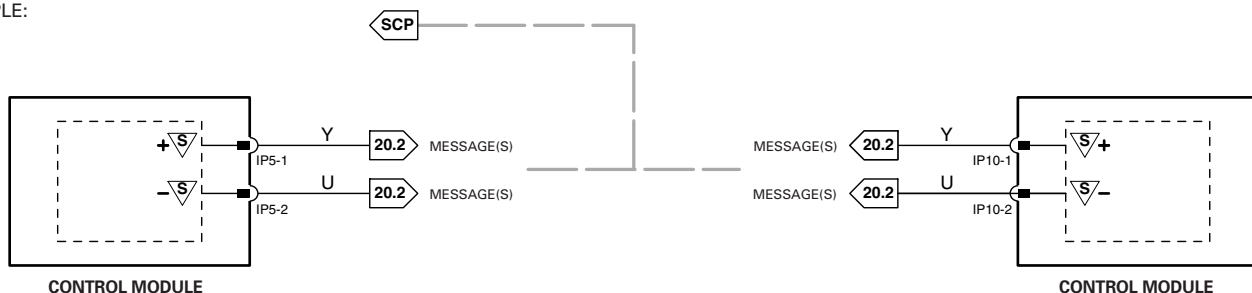
All fuses are located in the Power Distribution Fuse Box and the Central Junction Fuse Box. Each fuse in the vehicle is identified by a unique “F” number.

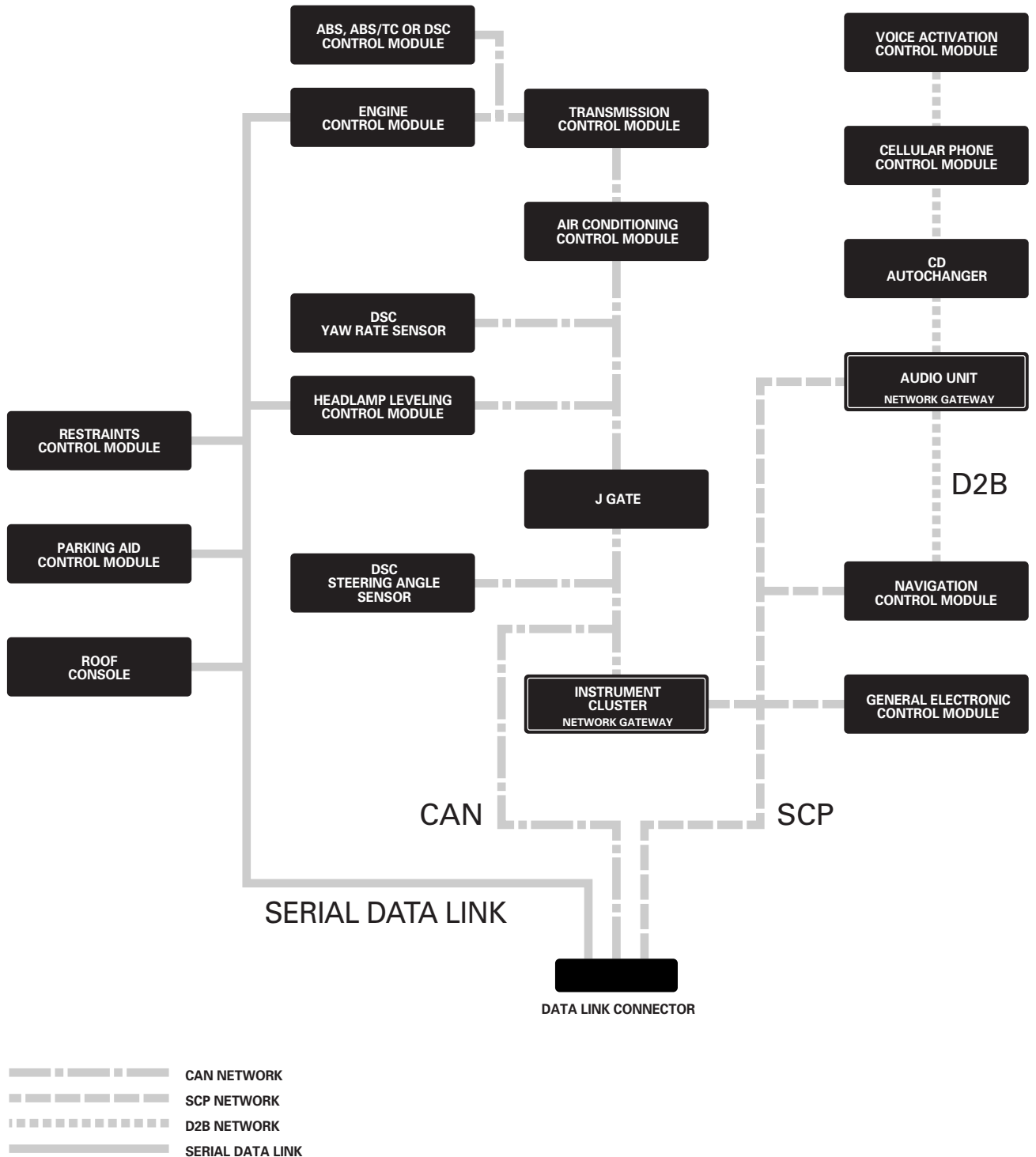


## Networks

In most instances, networks are shown as a broken grey line to indicate that there is network communication between the depicted control modules. Refer to Figures 20.1, 20.2, 20.3 and 20.4 for circuit details.

EXAMPLE:



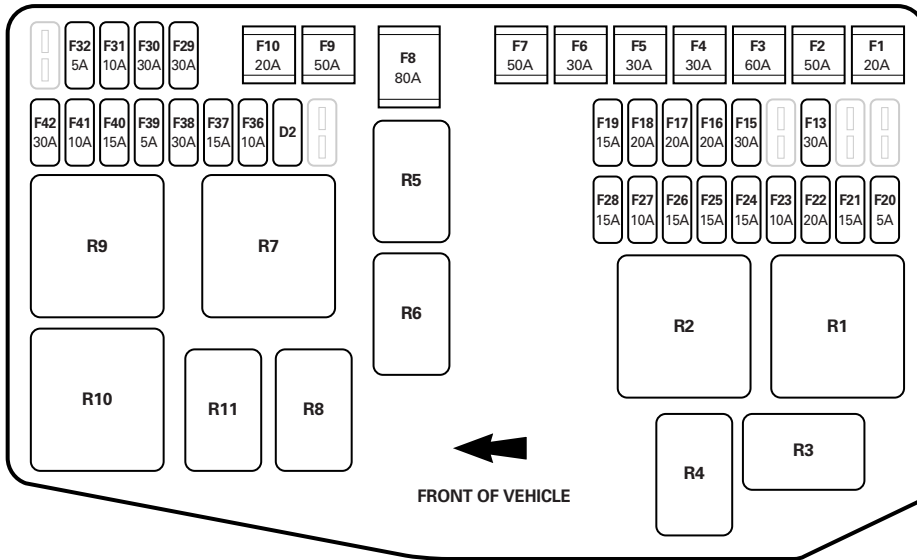


NOTE: TYPICAL NETWORK CONFIGURATION. REFER TO FIGURES 20.1, 20.2, 20.3 AND 20.4 FOR CIRCUIT DETAILS.



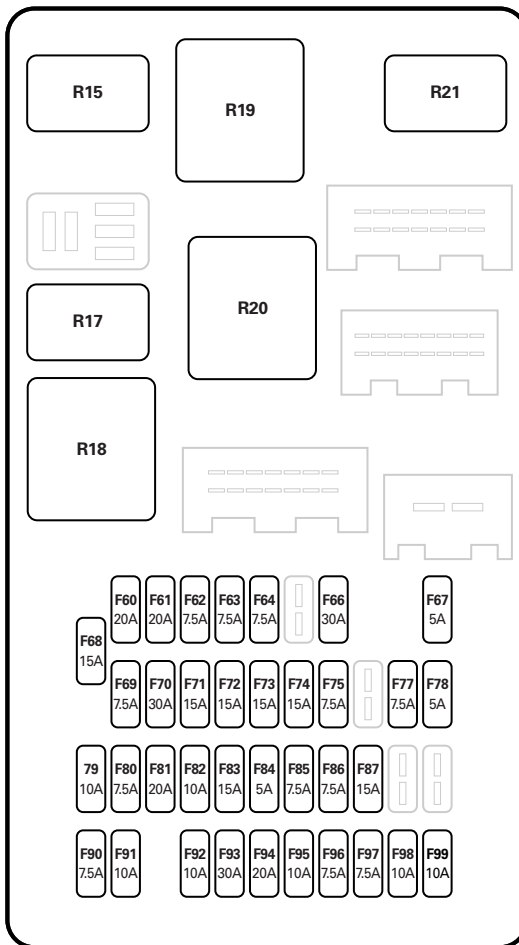


## POWER DISTRIBUTION FUSE BOX



- R1 WINDSHIELD WIPER MOTOR RELAY
- R2 WINDSHIELD HEATER RELAY
- R3 HORN RELAY
- R4 ACCESSORY POWER RELAY
- R5 POWER WASH PUMP RELAY
- R6 A/C COMPRESSOR CLUTCH RELAY
- R7 EMS CONTROL RELAY
- R8 TCM RELAY
- R9 DIP BEAM RELAY
- R10 STARTER RELAY
- R11 THROTTLE MOTOR RELAY (2.5L & 3.0L); FUEL PUMP RELAY (2.0L)

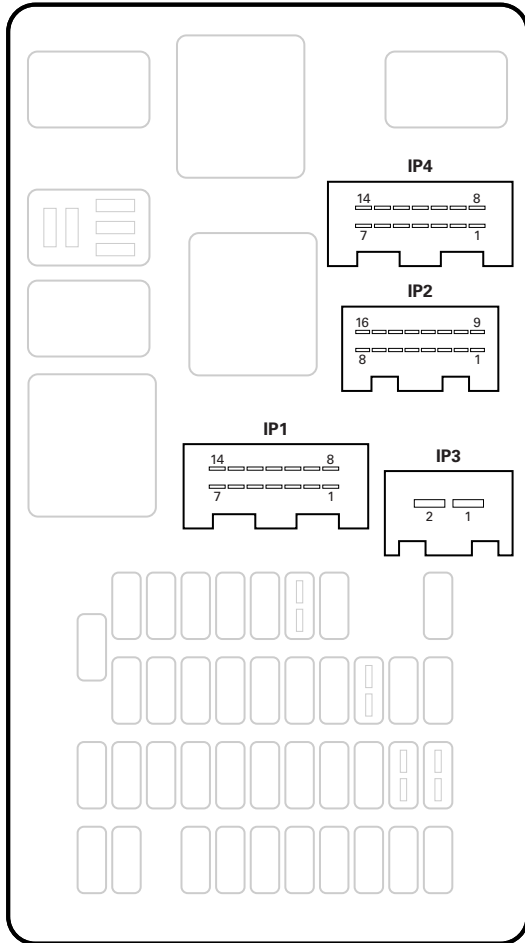
## CENTRAL JUNCTION FUSE BOX



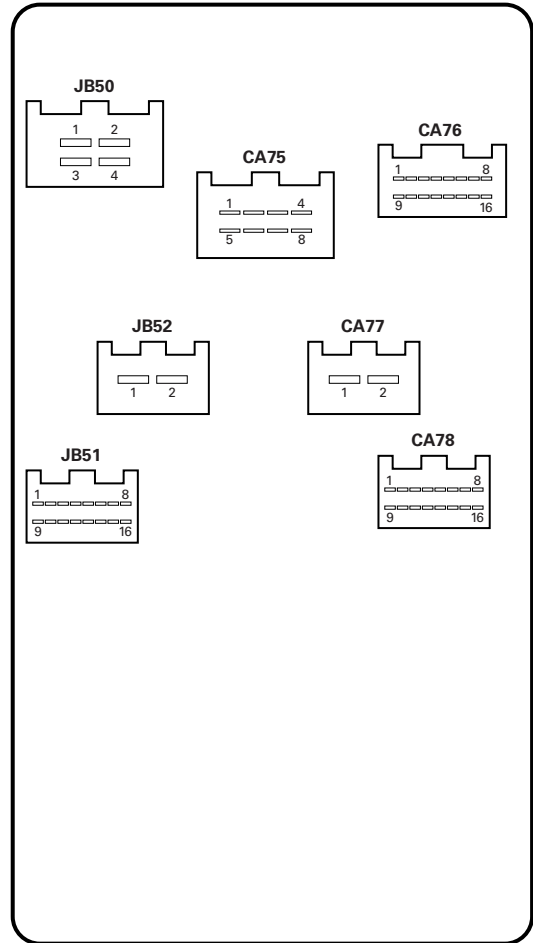
- R15 MAIN BEAM / FRONT FOG RELAY
- R16 NOT USED
- R17 REVERSE LAMPS RELAY
- R18 IGNITION RELAY
- R19 HEATED REAR WINDOW RELAY
- R20 A/C BLOWER RELAY
- R21 BATTERY SAVER RELAY

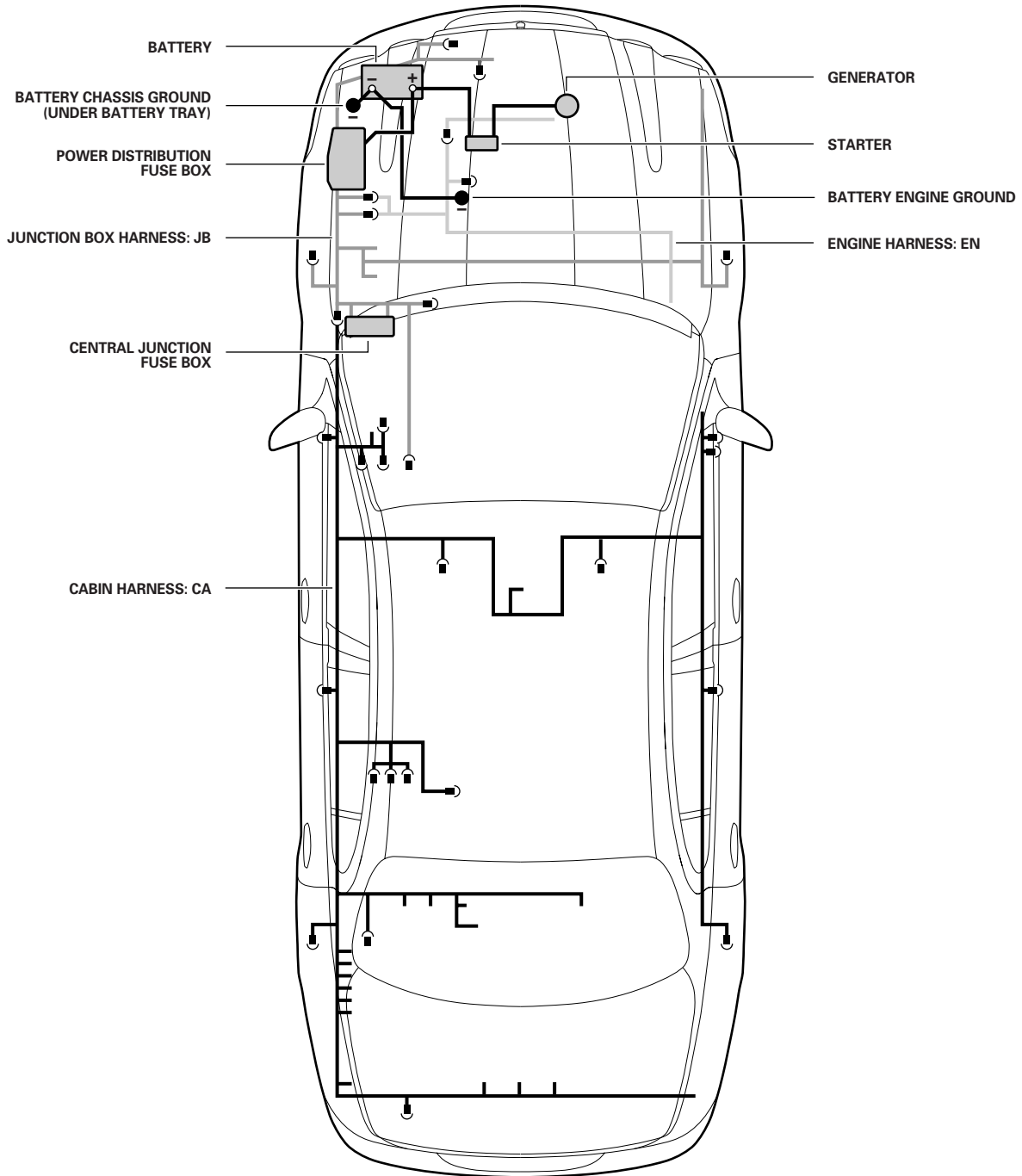


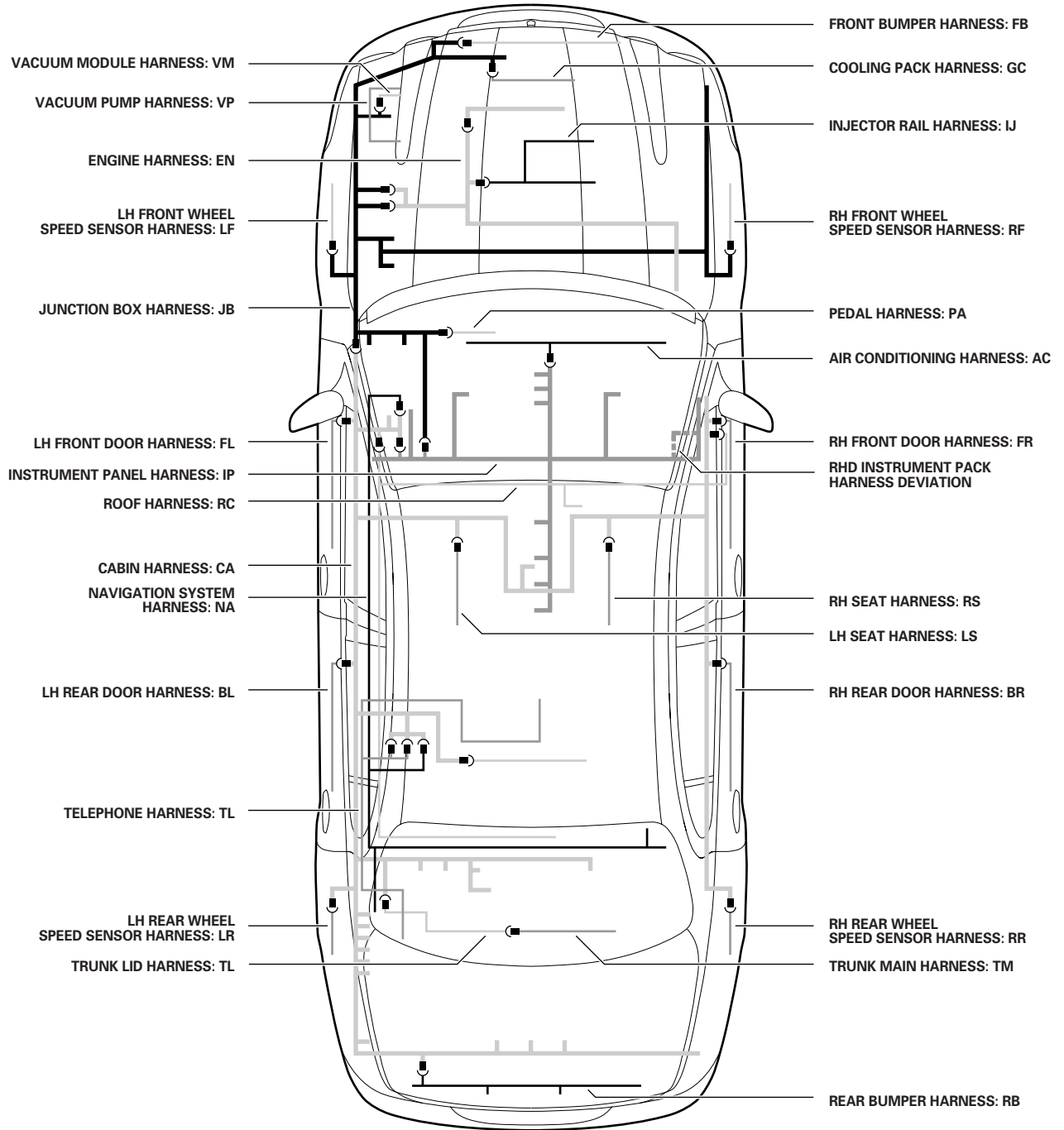
CENTRAL JUNCTION FUSE BOX - FRONT

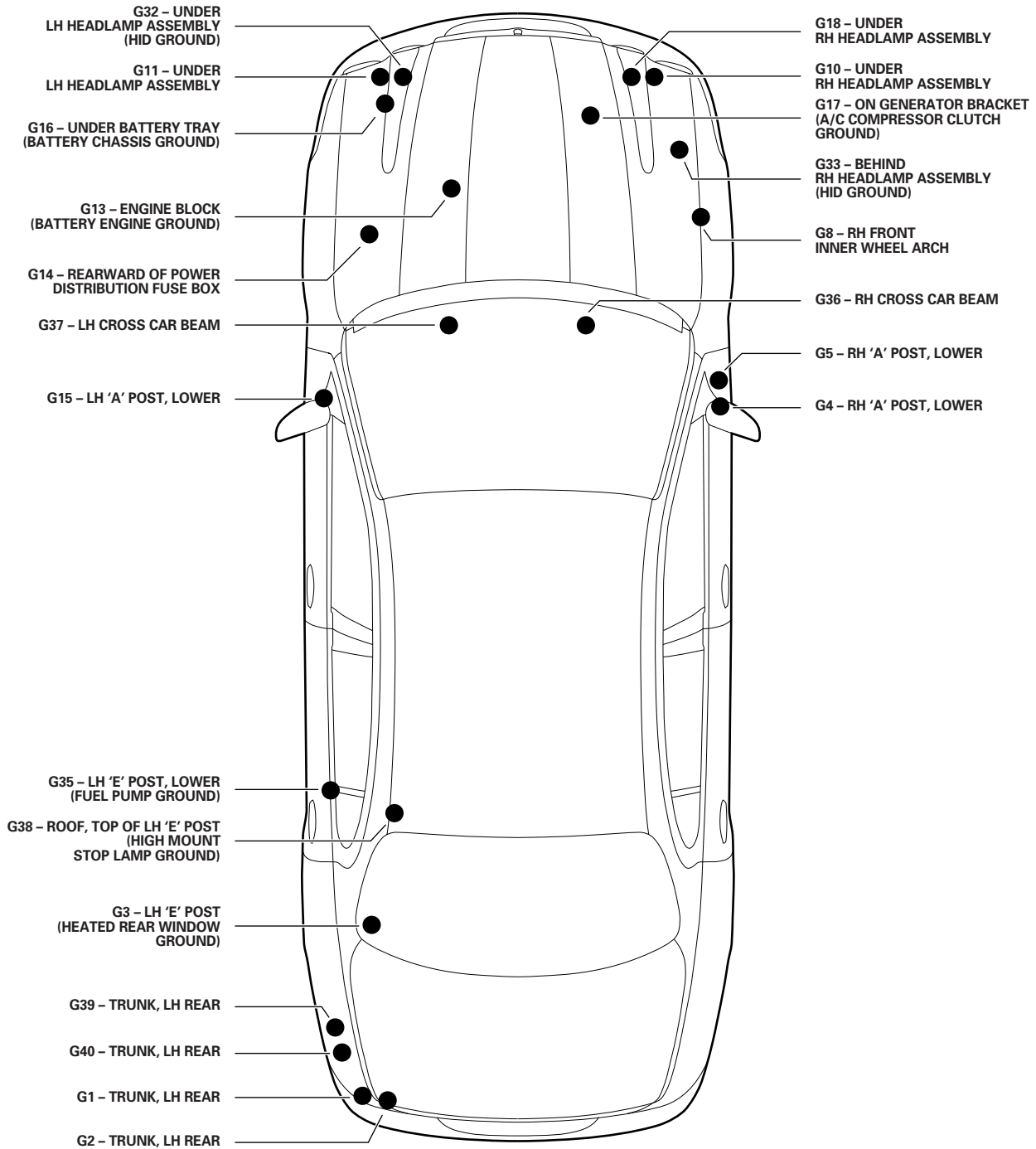


CENTRAL JUNCTION FUSE BOX - REAR

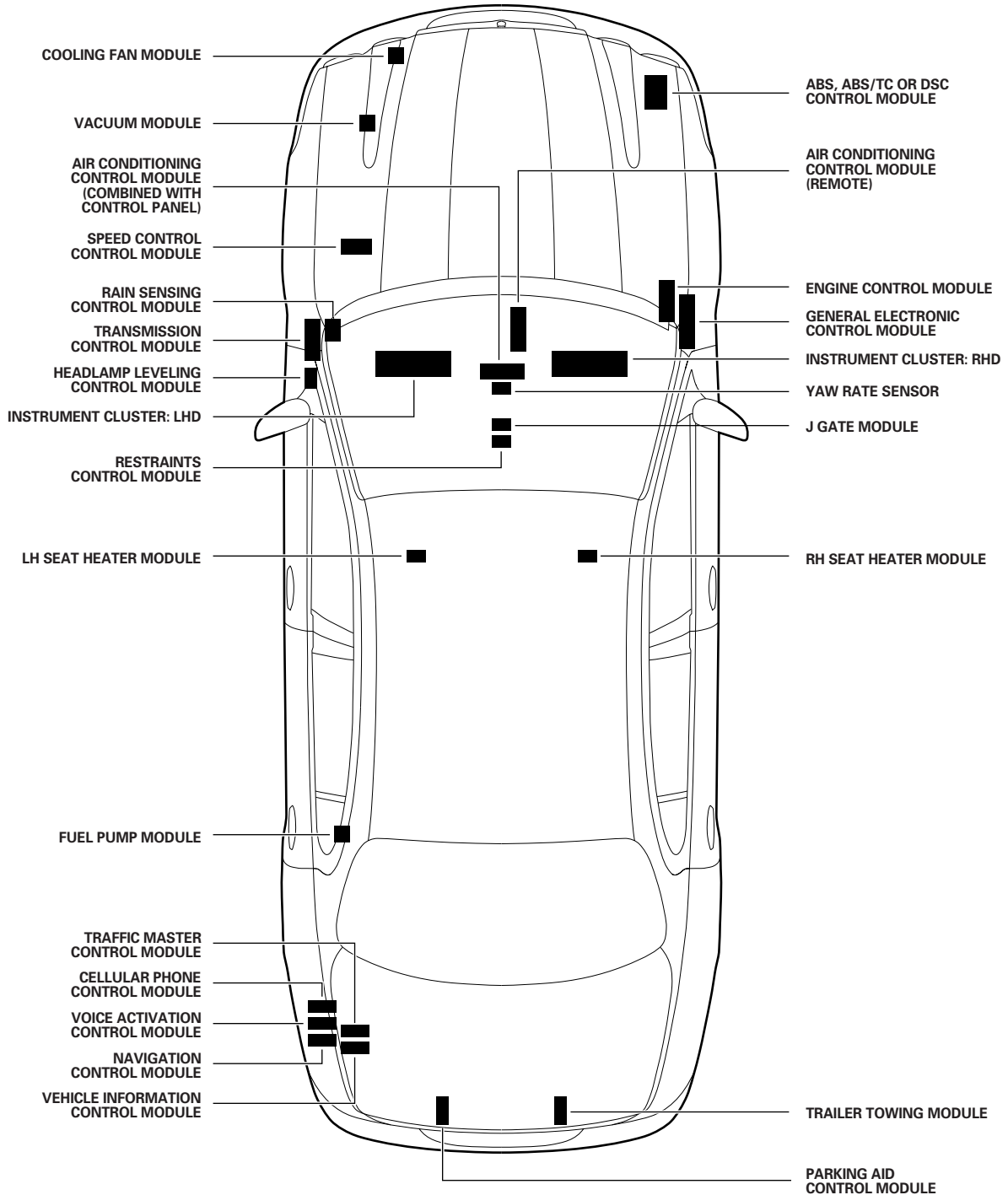






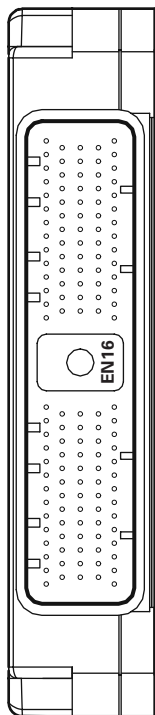


NOTE: UNIQUE GROUND STUDS ARE NOTED IN PARENTHESES.





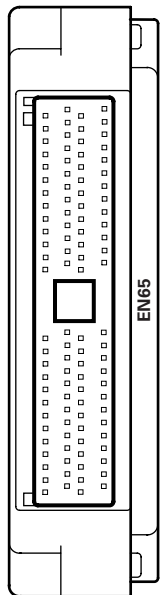
ENGINE CONTROL MODULE: 2.5L & 3.0L



EN16 / 134-WAY / BLACK

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 |    |
| Y   | P   | RW  | G   | B   | —   | BG  | BO  | BO  | BG  | B   | —   | BO  | BW  | BW  | WU  | —   | G   | Y   | —   | —   | BW  | N   | N   | BR  | YG  | YG  | BG  | RW |
| 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 |    |
| B   | B   | Y   | P   | —   | —   | GU  | GW  | GR  | —   | B   | U   | OY  | O   | B   | —   | —   | N   | —   | BG  | —   | R   | —   | RG  | W   | R   | —   | —   |    |
| 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  |    |
| GO  | GO  | —   | —   | —   | —   | GU  | GW  | GR  | —   | OG  | OY  | U   | G   | N   | UY  | —   | —   | U   | —   | P   | —   | Y   | Y   | Y   | U   | G   | —   |    |
| 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  |    |
| B   | B   | B   | —   | WG  | BG  | —   | P   | Y   | OY  | OY  | B   | GO  | —   | BG  | GW  | BW  | BW  | YR  | YU  | —   | —   | —   | —   | —   | —   | —   | —   |    |
| 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |    |
| RU  | RU  | —   | B   | B   | Y   | GO  | GO  | U   | GU  | —   | OY  | Y   | —   | —   | —   | B   | BG  | BG  | —   | —   | NR  | WG  | WG  | W   | WU  | N   | —   |    |

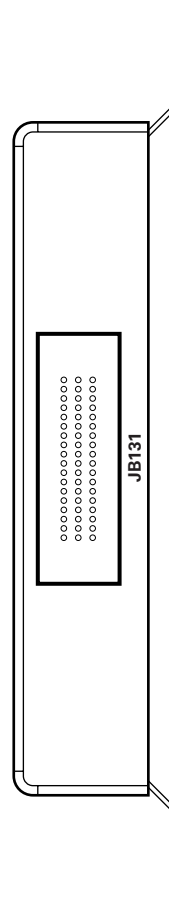
ENGINE CONTROL MODULE: 2.0L



EN65 / 104-WAY / BLACK

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 |
| Y  | UY | —  | —  | WG | WG | G  | N  | G  | N  | G  | Y  | —  | —  | BW | BO | BO | RW | G  | R  | GR | —   | —   | B   | GO  | RU  |
| 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74  | 75  | 76  | 77  | 78  |
| N  | N  | BR | GW | GU | —  | O  | B  | P  | Y  | GO | B  | BG | BO | BG | BO | BO | OY | OY | —  | —  | —   | —   | —   | —   | —   |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48  | 49  | 50  | 51  | 52  |
| N  | W  | BW | GW | BW | —  | —  | GO | U  | GU | N  | BG | W  | GU | GU | GR | RG | WU | —  | UY | U  | B   | —   | —   | —   | —   |
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22  | 23  | 24  | 25  | 26  |
| BW | WU | BG | B  | B  | Y  | U  | OG | —  | —  | OY | Y  | YG | —  | —  | —  | —  | —  | B  | B  | BG | NR  | WG  | WG  | —   | —   |

TRANSMISSION CONTROL MODULE

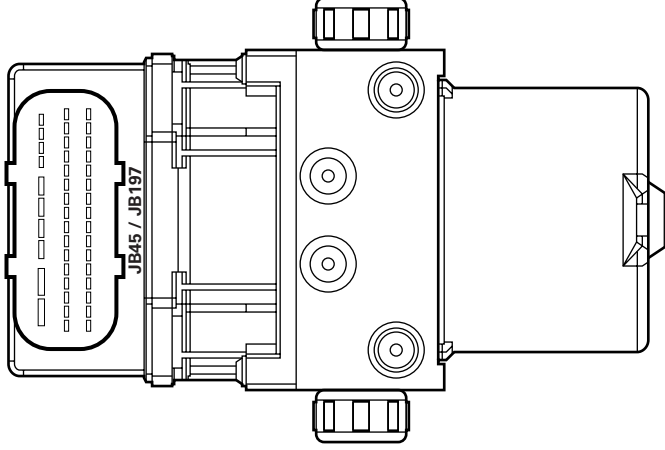


JB131 / 54-WAY / BLUE

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
| R  | B  | O  | N  | N  | G  | G  | —  | W  | B  | R  | O  | UY | N  | U  | G  | —  | —  |
| 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 |
| WU | —  | Y  | Y  | —  | —  | U  | —  | —  | Y  | G  | W  | N  | —  | N  | N  | B  | —  |
| 54 | 53 | 52 | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 |
| WU | Y  | G  | —  | —  | OY | O  | BW | U  | —  | —  | —  | Y  | —  | —  | W  | B  | —  |



ABS OR ABS/TC CONTROL MODULE



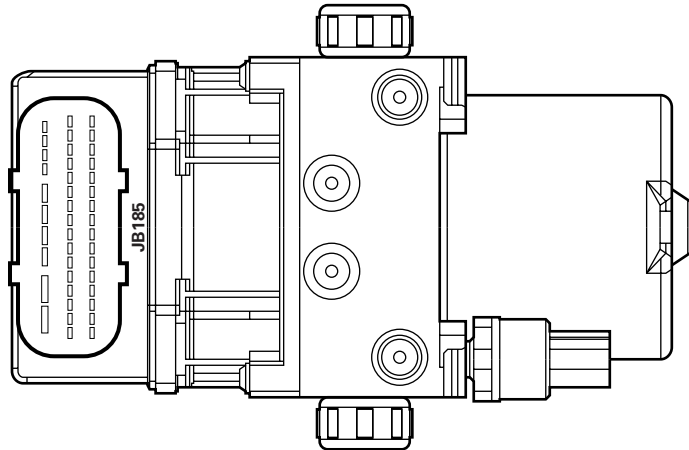
JB45 / 42-WAY / BROWN (ABS CONTROL MODULE)

|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| B  | R  | —  | —  | B  | R  | —  | —  | —  | —  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| —  | W  | GB | WU | NR | WR | —  | —  | 21 | 22 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| —  | N  | —  | NG | WG | GO | —  | —  | 37 | 38 |
|    |    |    |    |    |    |    |    | 39 | 40 |
|    |    |    |    |    |    |    |    | 41 | 42 |
|    |    |    |    |    |    |    |    | —  | —  |
|    |    |    |    |    |    |    |    | 25 | 26 |

JB197 / 42-WAY / BROWN (ABS/TC CONTROL MODULE)

|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| B  | R  | —  | —  | B  | R  | —  | —  | —  | —  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| —  | W  | GB | WU | NR | WR | —  | —  | 21 | 22 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| B  | N  | —  | NG | WG | GO | —  | —  | 37 | 38 |
|    |    |    |    |    |    |    |    | 39 | 40 |
|    |    |    |    |    |    |    |    | 41 | 42 |
|    |    |    |    |    |    |    |    | —  | —  |
|    |    |    |    |    |    |    |    | 25 | 26 |

DSCCONTROL MODULE



JB185 / 42-WAY / BLUE

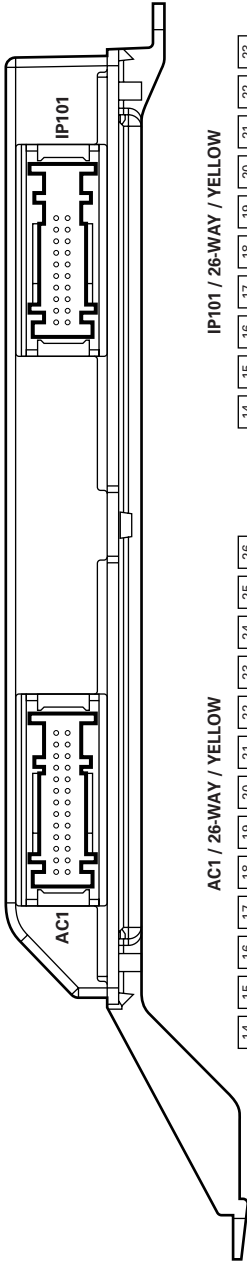
|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| B  | R  | —  | —  | B  | R  | —  | —  | —  | —  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| —  | W  | GB | WU | NR | WR | —  | —  | 21 | 22 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| B  | N  | —  | NG | WG | GO | —  | —  | 37 | 38 |
|    |    |    |    |    |    |    |    | 39 | 40 |
|    |    |    |    |    |    |    |    | 41 | 42 |
|    |    |    |    |    |    |    |    | —  | —  |
|    |    |    |    |    |    |    |    | 25 | 26 |

\* B – early production vehicles.





**AIR CONDITIONING CONTROL MODULE (REMOTE)**



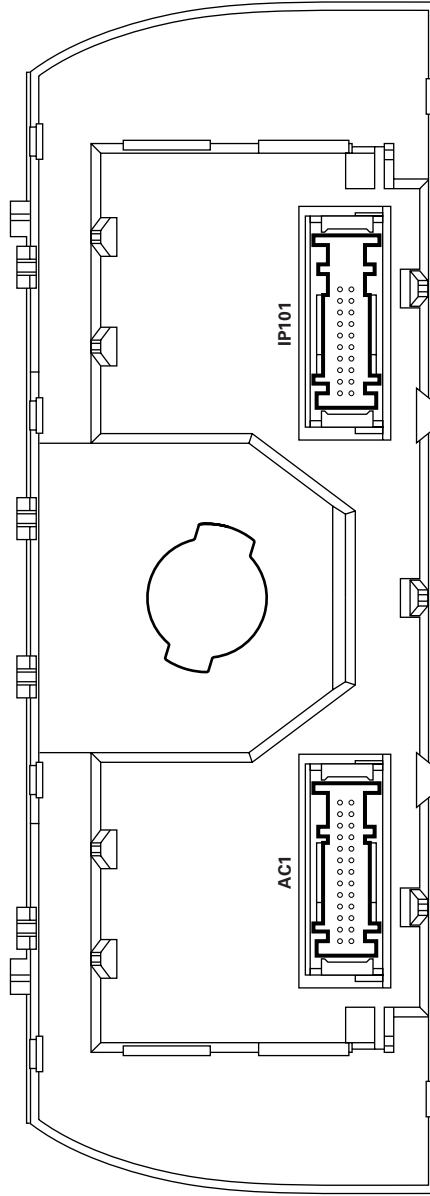
**AC1 / 26-WAY / YELLOW**

|    |    |
|----|----|
| 14 | G  |
| 15 | UY |
| 16 | B  |
| 17 | —  |
| 18 | —  |
| 19 | —  |
| 20 | —  |
| 21 | GU |
| 22 | GB |
| 23 | OG |
| 24 | RW |
| 25 | RG |
| 26 | OY |
| 1  | —  |
| 2  | —  |
| 3  | —  |
| 4  | GW |
| 5  | U  |
| 6  | GR |
| 7  | GO |
| 8  | RU |
| 9  | R  |
| 10 | WB |
| 11 | W  |
| 12 | Y  |
| 13 | R  |

**IP101 / 26-WAY / YELLOW**

|    |    |
|----|----|
| 14 | U  |
| 15 | B  |
| 16 | W  |
| 17 | B  |
| 18 | B  |
| 19 | B  |
| 20 | O  |
| 21 | W  |
| 22 | Y  |
| 23 | G  |
| 1  | OY |
| 2  | WR |
| 3  | B  |
| 4  | B  |
| 5  | BW |
| 6  | B  |
| 7  | BW |
| 8  | —  |
| 9  | Y  |
| 10 | G  |

**AIR CONDITIONING CONTROL MODULE (AUTOMATIC, PANEL)**



**AC1 / 26-WAY / YELLOW**

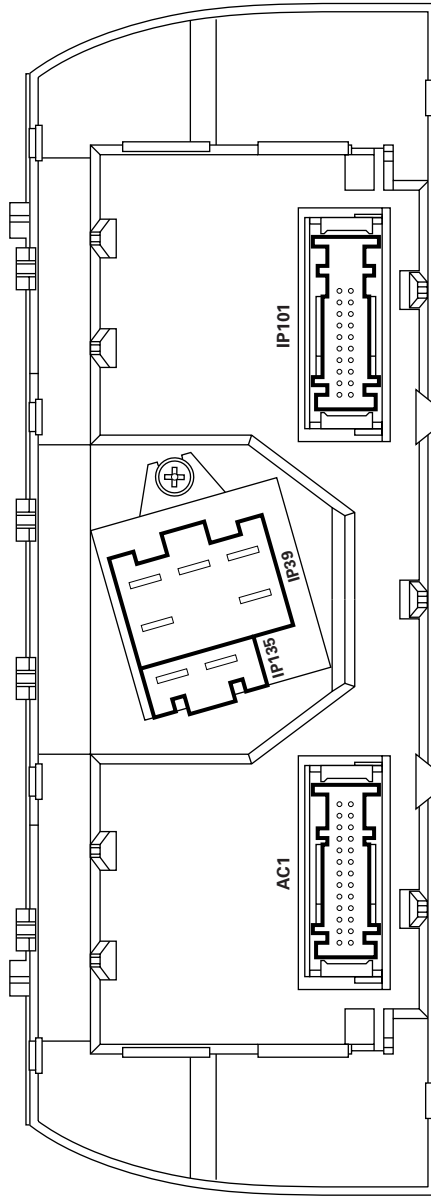
|    |    |
|----|----|
| 14 | G  |
| 15 | UY |
| 16 | B  |
| 17 | —  |
| 18 | —  |
| 19 | —  |
| 20 | —  |
| 21 | GU |
| 22 | GB |
| 23 | OG |
| 24 | RW |
| 25 | RG |
| 26 | OY |
| 1  | —  |
| 2  | —  |
| 3  | —  |
| 4  | GW |
| 5  | U  |
| 6  | GR |
| 7  | GO |
| 8  | RU |
| 9  | R  |
| 10 | WB |
| 11 | W  |
| 12 | Y  |
| 13 | R  |

**IP101 / 26-WAY / YELLOW**

|    |    |
|----|----|
| 14 | U  |
| 15 | B  |
| 16 | W  |
| 17 | B  |
| 18 | B  |
| 19 | B  |
| 20 | O  |
| 21 | W  |
| 22 | Y  |
| 23 | G  |
| 1  | OY |
| 2  | WR |
| 3  | B  |
| 4  | B  |
| 5  | BW |
| 6  | B  |
| 7  | BW |
| 8  | —  |
| 9  | Y  |
| 10 | G  |



AIR CONDITIONING CONTROL MODULE (MANUAL, PANEL)



AC1 / 26-WAY / YELLOW

|    |   |    |    |    |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|---|----|----|----|---|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 14 | G | 15 | UY | 16 | B | 17 | —  | 18 | — | 19 | —  | 20 | GU | 21 | GB | 22 | OG | 23 | O  | 24 | RW | 25 | RG | 26 | OY |
| 1  | — | 2  | —  | 3  | — | 4  | GW | 5  | U | 6  | GR | 7  | GO | 8  | RU | 9  | R  | 10 | WB | 11 | W  | 12 | Y  | 13 | R  |

IP135 / 2-WAY / GREEN

|   |    |
|---|----|
| 2 | B  |
| 1 | BW |

IP39 / 6-WAY / GREY

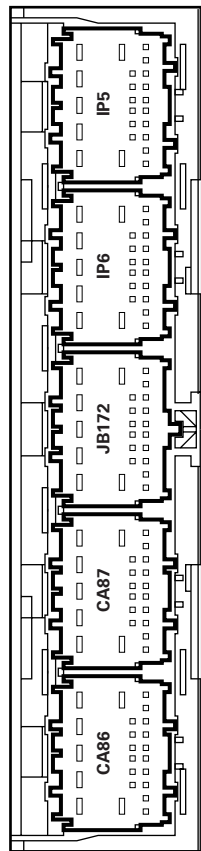
|   |    |   |    |
|---|----|---|----|
| 4 | BK | 1 | GB |
| 2 | BO | 3 | BR |
| 6 | BG |   |    |

IP101 / 26-WAY / YELLOW

|    |    |    |    |    |   |    |   |    |   |    |   |    |    |    |   |    |   |    |   |
|----|----|----|----|----|---|----|---|----|---|----|---|----|----|----|---|----|---|----|---|
| 14 | U  | 15 | B  | 16 | — | 17 | — | 18 | — | 19 | — | 20 | O  | 21 | — | 22 | Y | 23 | G |
| 1  | OY | 2  | WR | 3  | B | 4  | B | 5  | — | 6  | — | 7  | BW | 8  | — | 9  | Y | 10 | G |



GENERAL ELECTRONIC CONTROL MODULE



**CA86 / 23-WAY / GREY**

|   |    |   |    |   |    |   |    |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |
|---|----|---|----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|
| 1 | OG | 2 | OY | 3 | BK | 4 | YB | 5 | B | 6 | — | 7 | — | 8 | — | 9 | — | 10 | — | 11 | — | 12 | — | 13 | — | 14 | — | 15 | U | 16 | G | 17 | G | 18 | Y | 19 | O | 20 | Y | 21 | — | 22 | N | 23 | W |
|---|----|---|----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|

**IP5 / 23-WAY / BROWN**

|    |    |   |   |   |   |   |    |    |    |   |   |   |   |   |   |   |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |    |    |    |    |   |
|----|----|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|----|----|----|----|---|
| 1* | WB | 2 | — | 3 | B | 4 | GU | 5* | WG | 6 | — | 7 | — | 8 | — | 9 | — | 10 | — | 11 | — | 12 | — | 13 | — | 14 | B | 15 | — | 16 | U | 17 | — | 18 | U | 19 | Y | 20 | B | 21 | WG | 22 | OY | 23 | — |
|----|----|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|----|----|----|----|---|

\* NOTE: LHD shown. RHD vehicles: Pin 1 – WG, Pin 5 – WB.

**CA87 / 23-WAY / GREEN**

|   |   |   |   |   |    |   |   |   |    |   |   |   |   |   |   |   |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |    |    |   |    |   |    |   |    |   |    |   |    |   |
|---|---|---|---|---|----|---|---|---|----|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|----|----|---|----|---|----|---|----|---|----|---|----|---|
| 1 | B | 2 | O | 3 | YB | 4 | O | 5 | WB | 6 | — | 7 | — | 8 | — | 9 | — | 10 | — | 11 | — | 12 | — | 13 | — | 14 | — | 15 | Y | 16 | W | 17 | WG | 18 | — | 19 | — | 20 | — | 21 | — | 22 | — | 23 | — |
|---|---|---|---|---|----|---|---|---|----|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|----|----|---|----|---|----|---|----|---|----|---|----|---|

**JB172 / 23-WAY / BLUE**

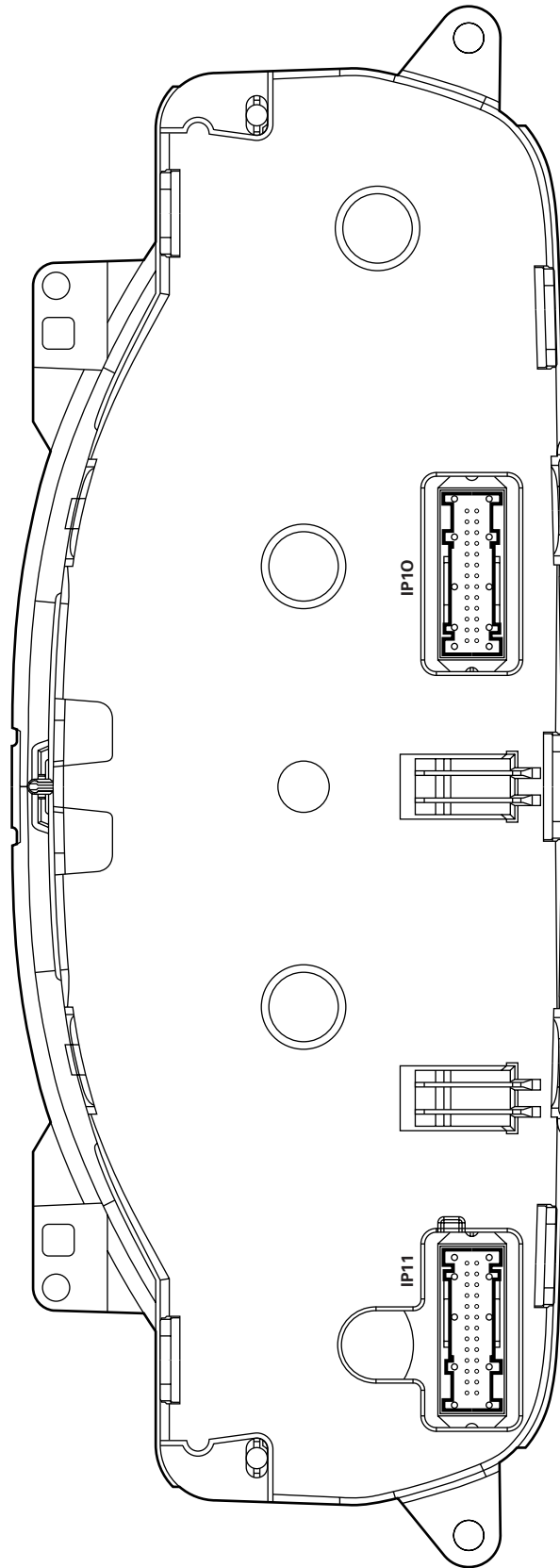
|   |    |   |    |   |   |   |    |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |
|---|----|---|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|
| 1 | OY | 2 | WB | 3 | O | 4 | OY | 5 | O | 6 | — | 7 | — | 8 | — | 9 | — | 10 | — | 11 | — | 12 | — | 13 | — | 14 | — | 15 | — | 16 | — | 17 | — | 18 | — | 19 | — | 20 | — | 21 | — | 22 | — | 23 | — |
|---|----|---|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|

**IP6 / 23-WAY / WHITE**

|   |   |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   |   |    |   |    |    |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |
|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|----|---|----|----|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|
| 1 | B | 2 | — | 3 | — | 4 | W | 5 | GR | 6 | — | 7 | — | 8 | B | 9 | G | 10 | R | 11 | BM | 12 | — | 13 | — | 14 | — | 15 | Y | 16 | — | 17 | — | 18 | — | 19 | — | 20 | — | 21 | — | 22 | — | 23 | — |
|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|----|---|----|----|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|



INSTRUMENT CLUSTER



IP10 / 26-WAY / YELLOW

|    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| —  | B  | B  | Y  | G  | U  | WU | —  | Y  | U  | Y  | W  | —  |
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| GB | OY | WG | O  | B  | G  | WU | WB | B  | U  | B  | B  | —  |

IP11 / 26-WAY / YELLOW

|    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
| YU | —  | GR | —  | —  | B  | O  | —  | B  | —  | GB | —  | —  |
| 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 |
| —  | R  | GR | U  | —  | O  | —  | U  | —  | OY | —  | OG | —  |

**Fig. 01.1****COMPONENTS**

| <b>Component</b>            | <b>Connector(s)</b> | <b>Connector Description</b> | <b>Location</b>                               |
|-----------------------------|---------------------|------------------------------|-----------------------------------------------|
| BATTERY                     | —                   | —                            | ENGINE COMPARTMENT                            |
| CENTRAL JUNCTION FUSE BOX   | CA75                | 8-WAY / GREY                 | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                             | CA76                | 16-WAY / GREEN               |                                               |
|                             | CA77                | 2-WAY / GREY                 |                                               |
|                             | CA78                | 16-WAY / GREY                |                                               |
|                             | IP1                 | 14-WAY / GREEN               |                                               |
|                             | IP2                 | 16-WAY GREY                  |                                               |
|                             | IP3                 | 2-WAY / GREY                 |                                               |
|                             | IP4                 | 14-WAY / GREY                |                                               |
|                             | JB50                | 4-WAY / GREY                 |                                               |
|                             | JB51                | 16-WAY / BLUE                |                                               |
|                             | JB52                | 2-WAY / BLACK                |                                               |
| IGNITION SWITCH             | IP18                | 7-WAY / BLACK                | STEERING COLUMN                               |
| INERTIA SWITCH              | IP132               | 3-WAY / BLACK                | LOWER RH A POST                               |
| POWER DISTRIBUTION FUSE BOX | —                   | —                            | ENGINE COMPARTMENT LH SIDE                    |
| TRANSIT ISOLATION DEVICE    | JB186               | 2-WAY / BLACK                | BATTERY                                       |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                                      | <b>Location</b>                       |
|------------------|-------------------------------------------------------------------|---------------------------------------|
| JB3              | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE        |
| JB130            | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                         |
|---------------|-----------------------------------------|
| G13           | ENGINE COMPARTMENT / UNDER BATTERY TRAY |
| G16           | ENGINE COMPARTMENT / ENGINE BLOCK       |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**COMPONENTS**

| Component                 | Connector(s)                | Connector Description | Location                                      |
|---------------------------|-----------------------------|-----------------------|-----------------------------------------------|
| CENTRAL JUNCTION FUSE BOX | CA75                        | 8-WAY / GREY          | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                           | CA76                        | 16-WAY / GREEN        |                                               |
|                           | CA77                        | 2-WAY / GREY          |                                               |
|                           | CA78                        | 16-WAY / GREY         |                                               |
|                           | IP1                         | 14-WAY / GREEN        |                                               |
|                           | IP2                         | 16-WAY / GREY         |                                               |
|                           | IP3                         | 2-WAY / GREY          |                                               |
|                           | IP4                         | 14-WAY / GREY         |                                               |
|                           | JB50                        | 4-WAY / GREY          |                                               |
|                           | JB51                        | 16-WAY / BLUE         |                                               |
|                           | JB52                        | 2-WAY / BLACK         |                                               |
|                           | POWER DISTRIBUTION FUSE BOX | —                     |                                               |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                                | Location                         |
|-----------|----------------------------------------------------------------------|----------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                      | BELOW THE GLOVEBOX               |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                       | DRIVER SIDE A POST               |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS                | LH B/C POST                      |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                               | RH B/C POST                      |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                       | LH LOWER A POST                  |
| CA65      | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS                       | BELOW RH FRONT SEAT              |
| CA70      | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS                       | BELOW LH FRONT SEAT              |
| CA169     | 4-WAY / GREY / CABIN HARNESS TO INSTRUMENT PANEL HARNESS             | BELOW THE GLOVEBOX               |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS                  | BELOW LH REAR SEAT CUSHION       |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS                   | BELOW LH REAR SEAT CUSHION       |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS              | ADJACENT TO LH SUSPENSION TURRET |
| JB3       | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS     | BELOW INSTRUMENT PANEL LH SIDE   |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS     | LH LOWER A POST                  |
| JB188     | 2-WAY / BLACK / JUNCTION BOX HARNESS TO COOLING FAN MODULE LINK LEAD | ADJACENT TO RADIATOR LH SIDE     |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**COMPONENTS**

| Component                   | Connector(s) | Connector Description | Location                                      |                            |
|-----------------------------|--------------|-----------------------|-----------------------------------------------|----------------------------|
| ACCESSORY POWER RELAY       | —            | —                     | POWER DISTRIBUTION FUSE BOX R4                |                            |
| CENTRAL JUNCTION FUSE BOX   | CA75         | 8-WAY / GREY          | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |                            |
|                             | CA76         | 16-WAY / GREEN        |                                               |                            |
|                             | CA77         | 2-WAY / GREY          |                                               |                            |
|                             | CA78         | 16-WAY / GREY         |                                               |                            |
|                             | IP1          | 14-WAY / GREEN        |                                               |                            |
|                             | IP2          | 16-WAY / GREY         |                                               |                            |
|                             | IP3          | 2-WAY / GREY          |                                               |                            |
|                             | IP4          | 14-WAY / GREY         |                                               |                            |
|                             | JB50         | 4-WAY / GREY          |                                               |                            |
|                             | JB51         | 16-WAY / BLUE         |                                               |                            |
|                             | JB52         | 2-WAY / BLACK         |                                               |                            |
| IGNITION SWITCH             | IP18         | 7-WAY / BLACK         |                                               | STEERING COLUMN            |
| POWER DISTRIBUTION FUSE BOX | —            | —                     |                                               | ENGINE COMPARTMENT LH SIDE |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                              |
|-----------|------------------------------------------------------------------|---------------------------------------|
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS             | SPARE WHEEL WELL                      |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                               | LH LOWER A POST                       |
| CA230     | 16-WAY / BLUE / CABIN HARNESS TO INSTRUMENT PANEL HARNESS        | LH LOWER A POST                       |
| CA240     | 12-WAY / GREY / CABIN HARNESS TO INSTRUMENT PANEL HARNESS        | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS              | BELOW LH REAR SEAT CUSHION            |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS               | BELOW LH REAR SEAT CUSHION            |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                       |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 01.4****COMPONENTS**

| Component                 | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                      |
|---------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| CENTRAL JUNCTION FUSE BOX | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| IGNITION RELAY            | —                                                                                | —                                                                                                                                                                                     | CENTRAL JUNCTION FUSE BOX R18                 |
| IGNITION SWITCH           | IP18                                                                             | 7-WAY / BLACK                                                                                                                                                                         | STEERING COLUMN                               |
| INERTIA SWITCH            | IP132                                                                            | 3-WAY / BLACK                                                                                                                                                                         | LOWER RH A POST                               |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS      | LH LOWER A POST                       |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                   | BELOW THE GLOVEBOX                    |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                    | DRIVER SIDE A POST                    |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                    | DRIVER SIDE A POST                    |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                            | RH B/C POST                           |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                    | LH LOWER A POST                       |
| CA65      | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS                    | BELOW RH FRONT SEAT                   |
| CA70      | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS                    | BELOW LH FRONT SEAT                   |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                                | LH LOWER A POST                       |
| CA230     | 16-WAY / BLUE / CABIN HARNESS TO INSTRUMENT PANEL HARNESS         | LH LOWER A POST                       |
| CA240     | 12-WAY / GREY / CABIN HARNESS TO INSTRUMENT PANEL HARNESS         | LH LOWER A POST                       |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS               | BELOW LH REAR SEAT CUSHION            |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB3       | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE        |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUND**

| Ground | Location                                |
|--------|-----------------------------------------|
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



**Fig. 01.5**

**General Electronic Control Module**

| Pin | Description and Characteristic                                                 |
|-----|--------------------------------------------------------------------------------|
| PG  | CA86-5 POWER GROUND: GROUND                                                    |
| O   | IP5-20 BATTERY SAVER RELAY DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO GROUND |
| SG  | IP6-1 LOGIC GROUND: GROUND                                                     |
| B+  | JB172-5 BATTERY POWER SUPPLY (TURN SIGNALS): B+                                |

**COMPONENTS**

| Component                         | Connector(s) | Connector Description | Location                                      |                                 |
|-----------------------------------|--------------|-----------------------|-----------------------------------------------|---------------------------------|
| BATTERY SAVER RELAY               | —            | —                     | CENTRAL JUNCTION FUSE BOX R21                 |                                 |
| CENTRAL JUNCTION FUSE BOX         | CA75         | 8-WAY / GREY          | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |                                 |
|                                   | CA76         | 16-WAY / GREEN        |                                               |                                 |
|                                   | CA77         | 2-WAY / GREY          |                                               |                                 |
|                                   | CA78         | 16-WAY / GREY         |                                               |                                 |
|                                   | IP1          | 14-WAY / GREEN        |                                               |                                 |
|                                   | IP2          | 16-WAY / GREY         |                                               |                                 |
|                                   | IP3          | 2-WAY / GREY          |                                               |                                 |
|                                   | IP4          | 14-WAY / GREY         |                                               |                                 |
|                                   | JB50         | 4-WAY / GREY          |                                               |                                 |
|                                   | JB51         | 16-WAY / BLUE         |                                               |                                 |
|                                   | JB52         | 2-WAY / BLACK         |                                               |                                 |
| GENERAL ELECTRONIC CONTROL MODULE | CA86         | 23-WAY / GREY         |                                               | BEHIND INSTRUMENT PANEL RH SIDE |
|                                   | CA87         | 23-WAY / GREEN        |                                               |                                 |
|                                   | IP5          | 23-WAY / BROWN        |                                               |                                 |
|                                   | IP6          | 23-WAY / WHITE        |                                               |                                 |
|                                   | JB172        | 23-WAY / BLUE         |                                               |                                 |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                          | Location           |
|-----------|------------------------------------------------|--------------------|
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS | LH LOWER A POST    |

**GROUND S**

| Ground | Location                                |
|--------|-----------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 01.6****COMPONENTS**

| <b>Component</b>            | <b>Connector(s)</b> | <b>Connector Description</b> | <b>Location</b>                |
|-----------------------------|---------------------|------------------------------|--------------------------------|
| EMS CONTROL RELAY           | —                   | —                            | POWER DISTRIBUTION FUSE BOX R7 |
| POWER DISTRIBUTION FUSE BOX | —                   | —                            | ENGINE COMPARTMENT LH SIDE     |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                                         | <b>Location</b>                           |
|------------------|----------------------------------------------------------------------|-------------------------------------------|
| CA5              | 12-WAY / BLACK / CABIN HARNESS TO FUEL TANK LINK LEAD                | TOP OF FUEL TANK                          |
| CA10             | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                      | BELOW THE GLOVEBOX                        |
| EN4              | 12-WAY / BLACK / ENGINE HARNESS TO INJECTOR RAIL HARNESS             | ADJACENT TO THE TRANSMISSION BELL HOUSING |
| JB1              | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS              | ADJACENT TO LH SUSPENSION TURRET          |
| JB187            | 2-WAY / BLACK / JUNCTION BOX HARNESS TO COOLING FAN MODULE LINK LEAD | ADJACENT TO RADIATOR LH SIDE              |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin      | Description and Characteristic         |
|----------|----------------------------------------|
| S IP5-18 | SCP -                                  |
| S IP5-19 | SCP +                                  |
| I IP6-8  | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN |

### Instrument Cluster

| Pin       | Description and Characteristic          |
|-----------|-----------------------------------------|
| D IP10-3  | PATS 1: ENCODED COMMUNICATION           |
| D IP10-4  | PATS 2: ENCODED COMMUNICATION           |
| I IP10-5  | PATS GROUND: GROUND                     |
| O IP10-6  | PATS TRANSCIEVER POWER: B+              |
| C IP10-17 | CAN +                                   |
| C IP10-18 | CAN -                                   |
| S IP10-22 | SCP +                                   |
| S IP10-23 | SCP -                                   |
| I IP11-7  | BATTERY POWER SUPPLY: B+                |
| I IP11-8  | POWER GROUND: GROUND                    |
| I IP11-11 | IGNITION SWITCHED POWER SUPPLY (II): B+ |

### Engine Control Module (2.5L & 3.0L)

| Pin        | Description and Characteristic                                                                        |
|------------|-------------------------------------------------------------------------------------------------------|
| I EN16-006 | ENGINE CRANK: B+                                                                                      |
| I EN16-031 | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / GROUND WHEN ACTIVATED               |
| I EN16-031 | CLUTCH PEDAL SAFETY SWITCH (MANUAL TRANSMISSION): NORMALLY OPEN / B+ WHEN ACTIVATED                   |
| O EN16-041 | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                      |
| I EN16-053 | GENERATOR CHARGE: VARIABLE VOLTAGE                                                                    |
| O EN16-065 | GENERATOR FIELD RETURN SIGNAL: VARIABLE VOLTAGE BY GENERATOR OPERATING CONDITION                      |
| I EN16-079 | GENERATOR LOAD: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON |
| C EN16-123 | CAN -                                                                                                 |
| C EN16-124 | CAN +                                                                                                 |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 02.1

### COMPONENTS

| Component                             | Connector(s)                        | Connector Description                                                                | Location                                   |
|---------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|
| BATTERY                               | —                                   | —                                                                                    | ENGINE COMPARTMENT                         |
| CLUTCH PEDAL SAFETY SWITCH            | PA5                                 | 2-WAY / BLACK                                                                        | TOP OF CLUTCH PEDAL                        |
| ENGINE CONTROL MODULE (2.5L & 3.0L)   | EN16                                | 134-WAY / BLACK                                                                      | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE     | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE            |
| GENERATOR                             | EN49                                | 4-WAY / BLACK                                                                        | ENGINE BANK 1, FRONT                       |
| IGNITION SWITCH                       | IP18                                | 7-WAY / BLACK                                                                        | STEERING COLUMN                            |
| INSTRUMENT CLUSTER                    | IP10<br>IP11                        | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                   | INSTRUMENT PANEL                           |
| PASSIVE ANTI-THEFT SYSTEM TRANSCIEVER | IP15                                | 4-WAY / GREEN                                                                        | STEERING COLUMN, IGNITION SWITCH           |
| POWER DISTRIBUTION FUSE BOX           | —                                   | —                                                                                    | ENGINE COMPARTMENT LH SIDE                 |
| STARTER MOTOR                         | ST2<br>ST3 / EN700                  | 1-WAY EYELET<br>1-WAY EYELET                                                         | ENGINE BLOCK RH SIDE                       |
| STARTER RELAY                         | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R10            |
| TRANSMISSION RANGE SENSOR             | JB156                               | 10-WAY / BLACK                                                                       | TOP OF TRANSMISSION                        |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                              |
|-----------|------------------------------------------------------------------|---------------------------------------|
| EN700     | 1-WAY / JUNCTION BOX HARNESS TO ENGINE HARNESS                   | STARTER SOLENOID                      |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET      |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS           | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                       |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS           | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

### GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G13    | ENGINE COMPARTMENT / ENGINE BLOCK         |
| G16    | ENGINE COMPARTMENT / UNDER BATTERY TRAY   |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin      | Description and Characteristic         |
|----------|----------------------------------------|
| S IP5-18 | SCP -                                  |
| S IP5-19 | SCP +                                  |
| I IP6-8  | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN |

### Instrument Cluster

| Pin       | Description and Characteristic          |
|-----------|-----------------------------------------|
| D IP10-3  | PATS 1: ENCODED COMMUNICATION           |
| D IP10-4  | PATS 2: ENCODED COMMUNICATION           |
| I IP10-5  | PATS GROUND: GROUND                     |
| O IP10-6  | PATS TRANSCIEVER POWER: B+              |
| C IP10-17 | CAN +                                   |
| C IP10-18 | CAN -                                   |
| S IP10-22 | SCP +                                   |
| S IP10-23 | SCP -                                   |
| I IP11-7  | BATTERY POWER SUPPLY: B+                |
| I IP11-8  | POWER GROUND: GROUND                    |
| I IP11-11 | IGNITION SWITCHED POWER SUPPLY (II): B+ |

### Engine Control Module (2.0L)

| Pin        | Description and Characteristic                                                                        |
|------------|-------------------------------------------------------------------------------------------------------|
| I EN65-006 | ENGINE CRANK: B+                                                                                      |
| O EN65-008 | GENERATOR FIELD RETURN SIGNAL: VARIABLE VOLTAGE BY GENERATOR OPERATING CONDITION                      |
| I EN65-035 | GENERATOR LOAD: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON |
| I EN65-043 | GENERATOR CHARGE: VARIABLE VOLTAGE                                                                    |
| O EN65-068 | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                      |
| I EN65-085 | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / GROUND WHEN ACTIVATED               |
| I EN65-085 | CLUTCH SAFETY CIRCUIT (MANUAL TRANSMISSION): B+                                                       |
| C EN65-088 | CAN -                                                                                                 |
| C EN65-089 | CAN +                                                                                                 |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 02.2

### COMPONENTS

| Component                             | Connector(s)                        | Connector Description                                                                | Location                                   |
|---------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|
| BATTERY                               | —                                   | —                                                                                    | ENGINE COMPARTMENT                         |
| ENGINE CONTROL MODULE (2.0L)          | EN16                                | 134-WAY / BLACK                                                                      | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE     | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE            |
| GENERATOR                             | EN49                                | 4-WAY / BLACK                                                                        | ENGINE BANK 1, FRONT                       |
| IGNITION SWITCH                       | IP18                                | 7-WAY / BLACK                                                                        | STEERING COLUMN                            |
| INSTRUMENT CLUSTER                    | IP10<br>IP11                        | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                   | INSTRUMENT PANEL                           |
| PASSIVE ANTI-THEFT SYSTEM TRANSCIEVER | IP15                                | 4-WAY / GREEN                                                                        | STEERING COLUMN, IGNITION SWITCH           |
| POWER DISTRIBUTION FUSE BOX           | —                                   | —                                                                                    | ENGINE COMPARTMENT LH SIDE                 |
| STARTER MOTOR (EARLY PRODUCTION)      | ST2<br>ST3 / EN700                  | 1-WAY EYELET<br>1-WAY EYELET                                                         | ENGINE BLOCK RH SIDE                       |
| STARTER RELAY                         | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R10            |
| TRANSMISSION RANGE SENSOR             | JB156                               | 10-WAY / BLACK                                                                       | TOP OF TRANSMISSION                        |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                              |
|-----------|------------------------------------------------------------------|---------------------------------------|
| EN700     | 1-WAY / JUNCTION BOX HARNESS TO ENGINE HARNESS                   | STARTER SOLENOID                      |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET      |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                       |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS           | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO FOOT PEDALS               |

### GROUND

| Ground | Location                                  |
|--------|-------------------------------------------|
| G13    | ENGINE COMPARTMENT / ENGINE BLOCK         |
| G16    | ENGINE COMPARTMENT / UNDER BATTERY TRAY   |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### Engine Control Module (2.5L & 3.0L)

| Pin         | Description and Characteristic                                                                                            |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| O EN16-001  | HO2 SENSOR HEATER CONTROL – 1/1: PWM, 1 CYCLE PER 128 ms, VARIABLE DUTY CYCLE                                             |
| O EN16-002  | HO2 SENSOR HEATER CONTROL – 1/1: PWM, 1 CYCLE PER 128 ms, VARIABLE DUTY CYCLE                                             |
| PG EN16-004 | POWER GROUND 1: GROUND                                                                                                    |
| PG EN16-005 | POWER GROUND 2: GROUND                                                                                                    |
| I EN16-006  | ENGINE CRANK: B+                                                                                                          |
| I EN16-007  | IGNITION ON: B+                                                                                                           |
| I EN16-008  | BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED                                                                  |
| I EN16-010  | INERTIA SWITCH: NORMALLY CLOSED / OPEN CIRCUIT WHEN ACTIVATED                                                             |
| SS EN16-012 | SENSOR POWER SUPPLY 1: NOMINAL 5 V                                                                                        |
| SS EN16-013 | SENSOR POWER SUPPLY 2: NOMINAL 5 V                                                                                        |
| SG EN16-017 | SMALL SIGNAL GROUND 1: GROUND                                                                                             |
| SG EN16-018 | SMALL SIGNAL GROUND 2: GROUND                                                                                             |
| SG EN16-019 | SENSOR GROUND 1: GROUND                                                                                                   |
| SG EN16-020 | SENSOR GROUND 2: GROUND                                                                                                   |
| B+ EN16-022 | BATTERY POWER SUPPLY: B+                                                                                                  |
| B+ EN16-023 | EMS SWITCHED POWER SUPPLY 1: B+                                                                                           |
| B+ EN16-024 | EMS SWITCHED POWER SUPPLY 2: B+                                                                                           |
| SG EN16-029 | HO2 SENSOR HEATER GROUND – 1/1: GROUND                                                                                    |
| SG EN16-030 | HO2 SENSOR HEATER GROUND – 1/1: GROUND                                                                                    |
| I EN16-031  | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / GROUND WHEN ACTIVATED                                   |
| I EN16-031  | CLUTCH PEDAL SAFETY SWITCH (MANUAL TRANSMISSION): NORMALLY OPEN / B+ WHEN ACTIVATED                                       |
| I EN16-036  | CRANKSHAFT SENSOR SIGNAL: PULSED SIGNAL, 70 PULSES PER ENGINE CYCLE                                                       |
| SG EN16-037 | CRANKSHAFT SENSOR SIGNAL GROUND: GROUND                                                                                   |
| O EN16-038  | INTAKE MANIFOLD TUNING VALVE SOLENOID DRIVE – 1 / TOP: GROUND WHEN ACTIVATED                                              |
| O EN16-039  | INTAKE MANIFOLD TUNING VALVE SOLENOID DRIVE – 2 / BOTTOM: GROUND WHEN ACTIVATED                                           |
| O EN16-040  | EMS CONTROL RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                      |
| O EN16-041  | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                          |
| SG EN16-043 | TP AND APP SIGNALS SHIELD: GROUND                                                                                         |
| I EN16-044  | MASS AIR FLOW SENSOR SIGNAL: NOMINAL 0 – 5 V BY ENGINE OPERATING CONDITION                                                |
| SG EN16-045 | MASS AIR FLOW SENSOR GROUND: GROUND                                                                                       |
| SG EN16-046 | MASS AIR FLOW SENSOR GROUND: GROUND                                                                                       |
| I EN16-050  | ENGINE FUEL TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES           |
| O EN16-052  | THROTTLE MOTOR RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                   |
| O EN16-053  | GENERATOR CHARGE: VARIABLE VOLTAGE                                                                                        |
| SG EN16-054 | THROTTLE MOTOR GROUND: GROUND                                                                                             |
| O EN16-055  | HO2 SENSOR HEATER CONTROL – 2/1: PWM, 1 CYCLE PER 128 ms, VARIABLE DUTY CYCLE                                             |
| O EN16-056  | HO2 SENSOR HEATER CONTROL – 2/1: PWM, 1 CYCLE PER 128 ms, VARIABLE DUTY CYCLE                                             |
| I EN16-065  | GENERATOR FIELD RETURN SIGNAL: VARIABLE VOLTAGE BY GENERATOR OPERATING CONDITION                                          |
| O EN16-066  | EVAP CANISTER PURGE VALVE DRIVE: PWM, 10 Hz, POSITIVE DUTY CYCLE RANGE 0.04% – 100%                                       |
| O EN16-067  | EVAP CANISTER CLOSE VALVE DRIVE: TO CLOSE, ECM SWITCHES CIRCUIT TO GROUND                                                 |
| I EN16-068  | BANK 2 CAMSHAFT SENSOR SIGNAL: PULSED SIGNAL, 4 PULSES PER ENGINE CYCLE                                                   |
| SG EN16-069 | BANK 2 CAMSHAFT SENSOR GROUND: GROUND                                                                                     |
| I EN16-070  | ENGINE COOLANT TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES        |
| I EN16-071  | INTAKE AIR TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES            |
| I EN16-073  | INJECTION PRESSURE SENSOR SIGNAL, NOMINAL 0 – 5 V: POTENTIOMETER – VOLTAGE DECREASES AS PRESSURE INCREASES                |
| I EN16-075  | THROTTLE POSITION SENSOR 1 SIGNAL: IDLE = 0.74 V; FULL THROTTLE = 3.97 V                                                  |
| I EN16-076  | THROTTLE POSITION SENSOR 2 SIGNAL: IDLE = 1.65 V; FULL THROTTLE = 4.20 V                                                  |
| I EN16-078  | ENGINE OIL TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES            |
| I EN16-079  | GENERATOR LOAD: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON                     |
| O EN16-080  | THROTTLE MOTOR DRIVE: B+ TO ACTIVATE MOTOR                                                                                |
| SG EN16-081 | HO2 SENSOR HEATER GROUND – 2/1: GROUND                                                                                    |
| SG EN16-082 | HO2 SENSOR HEATER GROUND – 2/1: GROUND                                                                                    |
| I EN16-083  | HO2 SENSOR 1/1 SIGNAL: VARIABLE CURRENT                                                                                   |
| I EN16-084  | HO2 SENSOR 1/1 SIGNAL: CONSTANT CURRENT                                                                                   |
| SG EN16-091 | HO2 SENSOR HEATERS 1/2, 2/2 GROUND: GROUND                                                                                |
| O EN16-092  | HO2 SENSOR HEATER CONTROL – 1/2: PWM, 1 CYCLE PER 256 ms, POSITIVE DUTY CYCLE RANGE 0 ms = 0%, 77 ms = 30%, 256 ms = 100% |
| O EN16-093  | HO2 SENSOR HEATER CONTROL – 2/2: PWM, 1 CYCLE PER 256 ms, POSITIVE DUTY CYCLE RANGE 0 ms = 0%, 77 ms = 30%, 256 ms = 100% |
| I EN16-094  | BANK 1 CAMSHAFT SENSOR SIGNAL: PULSED SIGNAL, 4 PULSES PER ENGINE CYCLE                                                   |
| SG EN16-095 | BANK 1 CAMSHAFT SENSOR GROUND: GROUND                                                                                     |
| I EN16-098  | KNOCK SENSOR SIGNAL: PULSED SIGNAL                                                                                        |
| SG EN16-100 | SENSOR SHIELD: GROUND                                                                                                     |
| I EN16-102  | ACCELERATOR PEDAL POSITION SENSOR 1 SIGNAL: FOOT OFF = 0.97 V; FULLY DEPRESSED = 3.33 V                                   |
| I EN16-103  | ACCELERATOR PEDAL POSITION SENSOR 2 SIGNAL: FOOT OFF = 3.97 V; FULLY DEPRESSED = 0.84 V                                   |
| I EN16-104  | FUEL TANK PRESSURE SENSOR SIGNAL, NOMINAL 0 – 5 V: VOLTAGE DECREASES AS PRESSURE INCREASES                                |
| D EN16-105  | SERIAL DATA LINK: SERIAL COMMUNICATION                                                                                    |
| O EN16-106  | THROTTLE MOTOR DRIVE: B+ TO ACTIVATE MOTOR                                                                                |
| I EN16-107  | HO2 SENSOR 2/1 SIGNAL: VARIABLE CURRENT                                                                                   |
| I EN16-108  | HO2 SENSOR 2/1 SIGNAL: CONSTANT CURRENT                                                                                   |
| O EN16-109  | BANK 1 VVT SOLENOID VALVE: PWM, 300 Hz, POSITIVE DUTY CYCLE RANGE 0% – 100%                                               |
| O EN16-110  | BANK 2 VVT SOLENOID VALVE: PWM, 300 Hz, POSITIVE DUTY CYCLE RANGE 0% – 100%                                               |
| SG EN16-111 | BANK 1 FUEL INJECTORS (1, 3, 5) GROUND: GROUND                                                                            |
| SG EN16-116 | BANK 2 FUEL INJECTORS (2, 4, 6) GROUND: GROUND                                                                            |
| C EN16-123  | CAN –                                                                                                                     |
| C EN16-124  | CAN +                                                                                                                     |
| I EN16-127  | MAP SENSOR SIGNAL, NOMINAL 0 – 5 V: VOLTAGE INCREASES AS MANIFOLD ABSOLUTE PRESSURE INCREASES                             |
| I EN16-128  | HO2 SENSOR 1/2 SIGNAL, NOMINAL 1 V SWING: 0.1 – 0.9 V SWING                                                               |
| I EN16-129  | HO2 SENSOR 2/2 SIGNAL, NOMINAL 1 V SWING: 0.1 – 0.9 V SWING                                                               |
| SG EN16-130 | HO2 SENSORS SHIELD: GROUND                                                                                                |
| B+ EN16-134 | THROTTLE MOTOR POWER SUPPLY: B+ WHEN RELAY ACTIVATED                                                                      |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 03.1

### COMPONENTS

| Component                           | Connector(s)                 | Connector Description                                           | Location                                      |
|-------------------------------------|------------------------------|-----------------------------------------------------------------|-----------------------------------------------|
| APP SENSOR                          | PA1                          | 6-WAY / BLACK                                                   | ABOVE ACCELERATOR PEDAL                       |
| BRAKE ON / OFF SWITCH               | PA3                          | 3-WAY / BLACK                                                   | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX           | CA75<br>CA76<br>CA77<br>CA78 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                     | IP1                          | 14-WAY / GREEN                                                  |                                               |
|                                     | IP2                          | 16-WAY / GREY                                                   |                                               |
|                                     | IP3                          | 2-WAY / GREY                                                    |                                               |
|                                     | IP4                          | 14-WAY / GREY                                                   |                                               |
|                                     | JB50                         | 4-WAY / GREY                                                    |                                               |
|                                     | JB51                         | 16-WAY / BLUE                                                   |                                               |
|                                     | JB52                         | 2-WAY / BLACK                                                   |                                               |
| CKP SENSOR                          | EN12                         | 2-WAY / BLACK                                                   | ADJACENT TO ENGINE CRANKSHAFT PULLEY          |
| CMP SENSOR 1                        | EN43                         | 2-WAY / BLACK                                                   | BANK 1 CYLINDER HEAD, FRONT                   |
| CMP SENSOR 2                        | EN33                         | 2-WAY / BLACK                                                   | BANK 2 CYLINDER HEAD, FRONT                   |
| ECT SENSOR                          | EN18                         | 2-WAY / BLACK                                                   | ENGINE VEE, FRONT                             |
| EFT SENSOR                          | IL8                          | 2-WAY / BLACK                                                   | FUEL RAIL, FRONT                              |
| ENGINE CONTROL MODULE (2.5L & 3.0L) | EN16                         | 134-WAY / BLACK                                                 | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE    |
| EOT SENSOR                          | EN25                         | 2-WAY / BLACK                                                   | ADJACENT TO ENGINE OIL FILTER                 |
| EVAP CANISTER CLOSE VALVE           | FT5                          | 2-WAY / BLACK                                                   | REARWARD OF FUEL TANK                         |
| EVAP CANISTER PURGE VALVE           | JB170                        | 2-WAY / BLACK                                                   | REARWARD OF FUEL TANK                         |
| FTP SENSOR                          | FT1                          | 3-WAY / BLACK                                                   | TOP OF FUEL TANK                              |
| HO2 SENSOR DOWNSTREAM 1/2           | EN14                         | 4-WAY / BLACK                                                   | BANK 1 EXHAUST                                |
| HO2 SENSOR DOWNSTREAM 2/2           | EN9                          | 4-WAY / BLACK                                                   | BANK 2 EXHAUST                                |
| HO2 SENSOR UPSTREAM 1/1             | EN37                         | 4-WAY / GREY                                                    | BANK 1 EXHAUST                                |
| HO2 SENSOR UPSTREAM 2/1             | EN32                         | 4-WAY / GREY                                                    | BANK 2 EXHAUST                                |
| IMT SOLENOID VALVE 1                | EN999                        | 2-WAY / BLACK                                                   | INTAKE MANIFOLD TOP                           |
| IMT SOLENOID VALVE 2                | EN998                        | 2-WAY / BLACK                                                   | INTAKE MANIFOLD BOTTOM                        |
| IP SENSOR                           | IL7                          | 3-WAY / BLACK                                                   | FUEL RAIL REAR                                |
| KNOCK SENSOR                        | EN23                         | 2-WAY / BLACK                                                   | ENGINE VEE                                    |
| MAF SENSOR                          | EN6                          | 5-WAY / BLACK                                                   | ENGINE AIR INTAKE DUCT                        |
| MAP SENSOR                          | EN8                          | 4-WAY / BLACK                                                   | INTAKE MANIFOLD, REAR                         |
| POWER DISTRIBUTION FUSE BOX         | —                            | —                                                               | ENGINE COMPARTMENT LH SIDE                    |
| THROTTLE BODY                       | EN10<br>EN13                 | 2-WAY / BLACK<br>4-WAY / BLACK                                  | ENGINE INTAKE MANIFOLD                        |
| THROTTLE MOTOR                      | EN10                         | 2-WAY / BLACK                                                   | ENGINE INTAKE MANIFOLD                        |
| THROTTLE MOTOR RELAY                | —                            | —                                                               | POWER DISTRIBUTION FUSE BOX R11               |
| TP SENSOR (2.5L & 3.0L)             | EN13                         | 4-WAY / BLACK                                                   | ENGINE INTAKE MANIFOLD                        |
| VVT SOLENOID VALVE 1                | EN61                         | 2-WAY / BLACK                                                   | BANK 1 CYLINDER HEAD                          |
| VVT SOLENOID VALVE 2                | EN42                         | 2-WAY / BLACK                                                   | BANK 2 CYLINDER HEAD                          |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                    | Location                                  |
|-----------|----------------------------------------------------------|-------------------------------------------|
| CA5       | 12-WAY / BLACK / CABIN HARNESS TO FUEL TANK LINK LEAD    | TOP OF FUEL TANK                          |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS          | BELOW THE GLOVEBOX                        |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                       | LH LOWER A POST                           |
| EN4       | 12-WAY / BLACK / ENGINE HARNESS TO INJECTOR RAIL HARNESS | ADJACENT TO THE TRANSMISSION BELL HOUSING |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS  | ADJACENT TO LH SUSPENSION TURRET          |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS   | ADJACENT TO CENTRAL JUNCTION FUSE BOX     |

### GROUND S

| Ground | Location                                 |
|--------|------------------------------------------|
| G8     | ENGINE COMPARTMENT / RH INNER WHEEL ARCH |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

Engine Control Module (2.5L & 3.0L)

| Pin         | Description and Characteristic                                                                                                                                      |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I EN16-009  | BRAKE CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                                                                                        |
| SS EN16-012 | SENSOR POWER SUPPLY 1: NOMINAL 5 V                                                                                                                                  |
| SG EN16-019 | SENSOR GROUND 1: GROUND                                                                                                                                             |
| I EN16-025  | FUEL PUMP MODULE MONITOR: PWM, 1 Hz, 50% POSITIVE DUTY CYCLE = NORMAL, 25% POSITIVE DUTY CYCLE = NO CONTROL SIGNAL, 75% POSITIVE DUTY CYCLE = FUEL PUMP INOPERATIVE |
| O EN16-027  | FUEL PUMP MODULE CONTROL: PWM, 250 Hz, NORMAL POSITIVE DUTY CYCLE RANGE = 4% - 51%                                                                                  |
| I EN16-033  | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                                                                                       |
| O EN16-034  | AIR CONDITIONING COMPRESSOR CLUTCH RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                         |
| I EN16-047  | SPEED CONTROL SWITCH REQUEST: STEPPED RESISTANCE                                                                                                                    |
| SG EN16-048 | SPEED CONTROL SWITCHES SIGNAL GROUND: GROUND                                                                                                                        |
| O EN16-051  | COOLING FAN MODULE CONTROL: PWM, 140 Hz, POSITIVE DUTY CYCLE RANGE 7% - 95%                                                                                         |
| O EN16-061  | IGNITION COIL ACTIVATE - CYLINDER 2: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-062  | IGNITION COIL ACTIVATE - CYLINDER 4: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-063  | IGNITION COIL ACTIVATE - CYLINDER 6: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-087  | IGNITION COIL ACTIVATE - CYLINDER 1: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-088  | IGNITION COIL ACTIVATE - CYLINDER 3: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-089  | IGNITION COIL ACTIVATE - CYLINDER 5: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                    |
| O EN16-113  | FUEL INJECTOR DRIVE - CYLINDER 5: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| O EN16-114  | FUEL INJECTOR DRIVE - CYLINDER 3: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| O EN16-115  | FUEL INJECTOR DRIVE - CYLINDER 1: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| O EN16-118  | FUEL INJECTOR DRIVE - CYLINDER 6: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| O EN16-119  | FUEL INJECTOR DRIVE - CYLINDER 4: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| O EN16-120  | FUEL INJECTOR DRIVE - CYLINDER 2: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                                                       |
| I EN16-121  | AIR CONDITIONING PRESSURE SENSOR SIGNAL, NOMINAL 0 - 5 V: TRANSDUCER - VOLTAGE INCREASES AS PRESSURE INCREASES                                                      |
| I EN16-131  | IGNITION MONITOR BANK 1 (1, 3, 5): PULSED SIGNAL, 3 PULSES PER ENGINE CYCLE                                                                                         |
| I EN16-132  | IGNITION MONITOR BANK 2 (2, 4, 6): PULSED SIGNAL, 3 PULSES PER ENGINE CYCLE                                                                                         |
| SG EN16-133 | FUEL PUMP CONTROL CIRCUIT SHIELD: GROUND                                                                                                                            |

COMPONENTS

| Component                                | Connector(s)  | Connector Description  | Location                                   |
|------------------------------------------|---------------|------------------------|--------------------------------------------|
| AIR CONDITIONING COMPRESSOR CLUTCH RELAY | —             | —                      | POWER DISTRIBUTION FUSE BOX R6             |
| AIR CONDITIONING COMPRESSOR CLUTCH       | EN30          | 2-WAY / BLACK          | ADJACENT TO ENGINE OIL FILTER              |
| AIR CONDITIONING PRESSURE SENSOR         | JB106         | 4-WAY / BLACK          | BEHIND FRONT LH WHEEL ARCH LINER           |
| BRAKE CANCEL SWITCH                      | PA2           | 2-WAY / BLACK          | TOP OF BRAKE PEDAL                         |
| CLUTCH CANCEL SWITCH                     | PA4           | 5-WAY / BLACK          | TOP OF CLUTCH PEDAL                        |
| COOLING FAN - LH                         | G2            | 2-WAY / BLACK          | COOLING PACK LH SIDE                       |
| COOLING FAN - RH                         | G2            | 2-WAY / BLACK          | COOLING PACK RH SIDE                       |
| COOLING FAN MODULE                       | JB188<br>PWM1 | 2-WAY / BLACK<br>4-WAY | ADJACENT TO RADIATOR LH SIDE               |
| ENGINE CONTROL MODULE (2.5L & 3.0L)      | EN16          | 134-WAY / BLACK        | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| FUEL INJECTOR 1                          | IL1           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL INJECTOR 2                          | IL4           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL INJECTOR 3                          | IL2           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL INJECTOR 4                          | IL5           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL INJECTOR 5                          | IL3           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL INJECTOR 6                          | IL6           | 2-WAY / BLACK          | FUEL RAIL                                  |
| FUEL PUMP                                | FT2           | 4-WAY / BLACK          | FUEL TANK                                  |
| FUEL PUMP MODULE                         | CA105         | 10-WAY / BLACK         | UNDER REAR SEAT LH SIDE                    |
| IGNITION CAPACITOR                       | EN94          | 2-WAY / BLACK          | BELOW AIR INTAKE                           |
| IGNITION MODULE AND COIL 1               | EN51          | 4-WAY                  | BANK 1 CYLINDER HEAD                       |
| IGNITION MODULE AND COIL 2               | EN54          | 4-WAY                  | BANK 2 CYLINDER HEAD                       |
| IGNITION MODULE AND COIL 3               | EN52          | 4-WAY                  | BANK 1 CYLINDER HEAD                       |
| IGNITION MODULE AND COIL 4               | EN55          | 4-WAY                  | BANK 2 CYLINDER HEAD                       |
| IGNITION MODULE AND COIL 5               | EN53          | 4-WAY                  | BANK 1 CYLINDER HEAD                       |
| IGNITION MODULE AND COIL 6               | EN56          | 4-WAY                  | BANK 2 CYLINDER HEAD                       |
| POWER DISTRIBUTION FUSE BOX              | —             | —                      | ENGINE COMPARTMENT LH SIDE                 |
| SPEED CONTROL SWITCHES                   | SW5           | 4-WAY / BLACK          | STEERING WHEEL                             |

HARNES IN-LINE CONNECTORS

| Connector | Connector Description                                                | Location                                  |
|-----------|----------------------------------------------------------------------|-------------------------------------------|
| CA5       | 12-WAY / BLACK / CABIN HARNESS TO FUEL TANK LINK LEAD                | TOP OF FUEL TANK                          |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                      | BELOW THE GLOVEBOX                        |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                                   | LH LOWER A POST                           |
| EN4       | 12-WAY / BLACK / ENGINE HARNESS TO INJECTOR RAIL HARNESS             | ADJACENT TO THE TRANSMISSION BELL HOUSING |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS              | ADJACENT TO LH SUSPENSION TURRET          |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS               | ADJACENT TO CENTRAL JUNCTION FUSE BOX     |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS     | LH LOWER A POST                           |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS               | ADJACENT TO CENTRAL JUNCTION FUSE BOX     |
| JB187     | 2-WAY / BLACK / JUNCTION BOX HARNESS TO COOLING FAN MODULE LINK LEAD | ADJACENT TO RADIATOR LH SIDE              |

GROUND S

| Ground | Location                                        |
|--------|-------------------------------------------------|
| G8     | ENGINE COMPARTMENT / RH INNER WHEEL ARCH        |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY |
| G17    | ENGINE COMPARTMENT / ON GENERATOR BRACKET       |
| G35    | PASSENGER COMPARTMENT / LH LOWER E POST         |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### Engine Control Module (2.0L)

| Pin         | Description and Characteristic                                                                                            |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| I EN65-001  | MAP SENSOR SIGNAL, NOMINAL 0 – 5 V: VOLTAGE INCREASES AS MANIFOLD ABSOLUTE PRESSURE INCREASES                             |
| I EN65-002  | AIR CONDITIONING PRESSURE SENSOR SIGNAL, NOMINAL 0 – 5 V: TRANSDUCER – VOLTAGE INCREASES AS PRESSURE INCREASES            |
| SG EN65-003 | SENSOR GROUND: GROUND                                                                                                     |
| SG EN65-004 | SMALL SIGNAL GROUND1: GROUND                                                                                              |
| SG EN65-005 | SMALL SIGNAL GROUND 2: GROUND                                                                                             |
| I EN65-006  | ENGINE CRANK: B+                                                                                                          |
| SS EN65-011 | SENSOR POWER SUPPLY: NOMINAL 5 V                                                                                          |
| PG EN65-018 | POWER GROUND 2: GROUND                                                                                                    |
| PG EN65-019 | POWER GROUND 1: GROUND                                                                                                    |
| B+ EN65-021 | BATTERY POWER SUPPLY: B+                                                                                                  |
| B+ EN65-022 | EMS SWITCHED POWER SUPPLY 1: B+                                                                                           |
| B+ EN65-023 | EMS SWITCHED POWER SUPPLY 2: B+                                                                                           |
| I EN65-025  | HO2 SENSOR 2/1 SIGNAL: CONSTANT CURRENT                                                                                   |
| I EN65-026  | HO2 SENSOR 2/1 SIGNAL: VARIABLE CURRENT                                                                                   |
| I EN65-027  | THROTTLE POSITION SENSOR SIGNAL: CLOSED THROTTLE = 0.89 V; FULL THROTTLE = 4.50 V                                         |
| SG EN65-028 | SENSOR SHIELD: GROUND                                                                                                     |
| SG EN65-029 | MASS AIR FLOW SENSOR GROUND: GROUND                                                                                       |
| I EN65-030  | MASS AIR FLOW SENSOR SIGNAL: NOMINAL 0 – 5 V BY ENGINE OPERATING CONDITION                                                |
| SG EN65-031 | MASS AIR FLOW SENSOR GROUND: GROUND                                                                                       |
| I EN65-034  | BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED                                                                  |
| I EN65-035  | GENERATOR LOAD: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON                     |
| I EN65-036  | INERTIA SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                                                   |
| I EN65-037  | KNOCK SENSOR SIGNAL: PULSED SIGNAL                                                                                        |
| SG EN65-038 | SENSOR SHIELD: GROUND                                                                                                     |
| D EN65-039  | SERIAL DATA LINK: SERIAL COMMUNICATION                                                                                    |
| I EN65-043  | GENERATOR CHARGE: VARIABLE VOLTAGE                                                                                        |
| O EN65-044  | COOLING FAN MODULE CONTROL: PWM, 140Hz, POSITIVE DUTY CYCLE RANGE 7% – 95%                                                |
| O EN65-046  | HO2 SENSOR HEATER CONTROL – 2/2: PWM, 1 CYCLE PER 256 mS, POSITIVE DUTY CYCLE RANGE 0 mS = 0%, 77 mS = 30%, 256 mS = 100% |
| O EN65-047  | HO2 SENSOR HEATER CONTROL – 1/2: PWM, 1 CYCLE PER 256 mS, POSITIVE DUTY CYCLE RANGE 0 mS = 0%, 77 mS = 30%, 256 mS = 100% |
| SG EN65-048 | HO2 SENSOR HEATER GROUND – 1/2 AND 2/2: GROUND                                                                            |
| I EN65-050  | HO2 SENSOR 1/1 SIGNAL: CONSTANT CURRENT                                                                                   |
| I EN65-051  | HO2 SENSOR 1/1 SIGNAL: VARIABLE CURRENT                                                                                   |
| SG EN65-052 | HO2 SENSOR HEATER GROUND – 2/1: GROUND                                                                                    |
| I EN65-053  | HO2 SENSOR 1/2 SIGNAL, NOMINAL 1 V SWING: 0.1 – 0.9 V SWING                                                               |
| I EN65-054  | HO2 SENSOR 2/2 SIGNAL, NOMINAL 1 V SWING: 0.1 – 0.9 V SWING                                                               |
| SG EN65-055 | HO2 SENSORS SHIELD: GROUND                                                                                                |
| I EN65-059  | BANK 1 CAMSHAFT SENSOR SIGNAL: PULSED SIGNAL, 4 PULSES PER ENGINE CYCLE                                                   |
| SG EN65-060 | BANK 1 CAMSHAFT SENSOR GROUND: GROUND                                                                                     |
| I EN65-061  | CRANKSHAFT SENSOR SIGNAL: PULSED SIGNAL, 70 PULSES PER ENGINE CYCLE                                                       |
| SG EN65-062 | CRANKSHAFT SENSOR SIGNAL GROUND: GROUND                                                                                   |
| I EN65-063  | IGNITION ON: B+                                                                                                           |
| SG EN65-064 | BANK 2 FUEL INJECTORS (2, 4, 6) GROUND: GROUND                                                                            |
| O EN65-068  | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                          |
| O EN65-069  | EMS CONTROL RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                                      |
| O EN65-070  | INTAKE MANIFOLD TUNING VALVE SOLENOID DRIVE – 2 / BOTTOM: GROUND WHEN ACTIVATED                                           |
| O EN65-071  | INTAKE MANIFOLD TUNING VALVE SOLENOID DRIVE – 1 / TOP: GROUND WHEN ACTIVATED                                              |
| O EN65-074  | EVAP CANISTER PURGE VALVE DRIVE: PWM, 10 Hz, POSITIVE DUTY CYCLE RANGE 0.04% – 100%                                       |
| SG EN65-075 | HO2 SENSOR HEATER GROUND – 1/1: GROUND                                                                                    |
| O EN65-077  | HO2 SENSOR HEATER CONTROL – 1/1: PWM, 1 CYCLE PER 128 mS, VARIABLE DUTY CYCLE                                             |
| SG EN65-078 | HO2 SENSOR HEATER GROUND – 2/1: GROUND                                                                                    |
| I EN65-079  | ENGINE OIL TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES            |
| I EN65-080  | ENGINE COOLANT TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES        |
| I EN65-081  | INTAKE AIR TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES            |
| I EN65-085  | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / GROUND WHEN ACTIVATED                                   |
| I EN65-085  | CLUTCH SAFETY CIRCUIT (MANUAL TRANSMISSION): B+                                                                           |
| I EN65-086  | BANK 2 CAMSHAFT SENSOR SIGNAL: PULSED SIGNAL, 4 PULSES PER ENGINE CYCLE                                                   |
| SG EN65-087 | BANK 2 CAMSHAFT SENSOR GROUND: GROUND                                                                                     |
| C EN65-088  | CAN –                                                                                                                     |
| C EN65-089  | CAN +                                                                                                                     |
| SG EN65-091 | BANK 1 FUEL INJECTORS (1, 3, 5) GROUND: GROUND                                                                            |
| O EN65-095  | BANK 2 VVT SOLENOID VALVE: PWM, 300Hz, POSITIVE DUTY CYCLE RANGE 0% – 100%                                                |
| O EN65-096  | BANK 1 VVT SOLENOID VALVE: PWM, 300Hz, POSITIVE DUTY CYCLE RANGE 0% – 100%                                                |
| O EN65-097  | IDLE SPEED CONTROL VALVE MOTOR DRIVE (-): PWM                                                                             |
| O EN65-098  | IDLE SPEED CONTROL VALVE MOTOR DRIVE (+): PWM                                                                             |
| SG EN65-102 | HO2 SENSOR HEATER GROUND – 1/1: GROUND                                                                                    |
| O EN65-103  | HO2 SENSOR HEATER CONTROL – 2/1: PWM, 1 CYCLE PER 128 mS, VARIABLE DUTY CYCLE                                             |
| O EN65-104  | HO2 SENSOR HEATER CONTROL – 1/1: PWM, 1 CYCLE PER 128 mS, VARIABLE DUTY CYCLE                                             |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 03.3

### COMPONENTS

| Component                    | Connector(s) | Connector Description | Location                                      |
|------------------------------|--------------|-----------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH        | PA3          | 3-WAY / BLACK         | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX    | CA75         | 8-WAY / GREY          | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                              | CA76         | 16-WAY / GREEN        |                                               |
|                              | CA77         | 2-WAY / GREY          |                                               |
|                              | CA78         | 16-WAY / GREY         |                                               |
|                              | IP1          | 14-WAY / GREEN        |                                               |
|                              | IP2          | 16-WAY / GREY         |                                               |
|                              | IP3          | 2-WAY / GREY          |                                               |
|                              | IP4          | 14-WAY / GREY         |                                               |
|                              | JB50         | 4-WAY / GREY          |                                               |
|                              | JB51         | 16-WAY / BLUE         |                                               |
|                              | JB52         | 2-WAY / BLACK         |                                               |
| CKP SENSOR                   | EN12         | 2-WAY / BLACK         | ADJACENT TO ENGINE CRANKSHAFT PULLEY          |
| CMP SENSOR 1                 | EN43         | 2-WAY / BLACK         | BANK 1 CYLINDER HEAD, FRONT                   |
| CMP SENSOR 2                 | EN33         | 2-WAY / BLACK         | BANK 2 CYLINDER HEAD, FRONT                   |
| ECT SENSOR                   | EN18         | 2-WAY / BLACK         | ENGINE VEE, FRONT                             |
| ENGINE CONTROL MODULE (2.0L) | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE    |
| EOT SENSOR                   | EN25         | 2-WAY / BLACK         | ADJACENT TO ENGINE OIL FILTER                 |
| EVAP CANISTER PURGE VALVE    | JB170        | 2-WAY / BLACK         | REARWARD OF FUEL TANK                         |
| HO2 SENSOR DOWNSTREAM 1/2    | EN14         | 4-WAY / BLACK         | BANK 1 EXHAUST                                |
| HO2 SENSOR DOWNSTREAM 2/2    | EN9          | 4-WAY / BLACK         | BANK 2 EXHAUST                                |
| HO2 SENSOR UPSTREAM 1/1      | EN37         | 4-WAY / GREY          | BANK 1 EXHAUST                                |
| HO2 SENSOR UPSTREAM 2/1      | EN32         | 4-WAY / GREY          | BANK 2 EXHAUST                                |
| IDLE SPEED CONTROL VALVE     | EN87         | 2-WAY / BLACK         | THROTTLE ASSEMBLY                             |
| IMT SOLENOID VALVE 1         | EN999        | 2-WAY / BLACK         | INTAKE MANIFOLD TOP                           |
| IMT SOLENOID VALVE 2         | EN998        | 2-WAY / BLACK         | INTAKE MANIFOLD BOTTOM                        |
| KNOCK SENSOR                 | EN23         | 2-WAY / BLACK         | ENGINE VEE                                    |
| MAF SENSOR                   | EN6          | 5-WAY / BLACK         | ENGINE AIR INTAKE DUCT                        |
| MAP SENSOR                   | EN8          | 4-WAY / BLACK         | INTAKE MANIFOLD, REAR                         |
| TP SENSOR (2.0L)             | EN88         | 3-WAY / BLACK         | ENGINE INTAKE MANIFOLD                        |
| VVT SOLENOID VALVE 1         | EN61         | 2-WAY / BLACK         | BANK 1 CYLINDER HEAD                          |
| VVT SOLENOID VALVE 2         | EN42         | 2-WAY / BLACK         | BANK 2 CYLINDER HEAD                          |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                   | Location                         |
|-----------|---------------------------------------------------------|----------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS         | BELOW THE GLOVEBOX               |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                      | LH LOWER A POST                  |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS | ADJACENT TO LH SUSPENSION TURRET |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS   | ADJACENT TO FOOT PEDALS          |

### GROUND

| Ground | Location                                 |
|--------|------------------------------------------|
| G8     | ENGINE COMPARTMENT / RH INNER WHEEL ARCH |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## Engine Control Module (2.0L)

| Pin         | Description and Characteristic                                                                                 |
|-------------|----------------------------------------------------------------------------------------------------------------|
| I EN65-002  | AIR CONDITIONING PRESSURE SENSOR SIGNAL, NOMINAL 0 – 5 V: TRANSDUCER – VOLTAGE INCREASES AS PRESSURE INCREASES |
| SG EN65-003 | SENSOR GROUND: GROUND                                                                                          |
| I EN65-007  | BRAKE CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                                   |
| SS EN65-011 | SENSOR POWER SUPPLY: NOMINAL 5 V                                                                               |
| I EN65-012  | IGNITION MONITOR BANK 1 (1, 3, 5) : PULSED SIGNAL, 3 PULSES PER ENGINE CYCLE                                   |
| I EN65-013  | IGNITION MONITOR BANK 2 (2, 4, 6) : PULSED SIGNAL, 3 PULSES PER ENGINE CYCLE                                   |
| O EN65-014  | IGNITION COIL ACTIVATE – CYLINDER 1: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| O EN65-015  | IGNITION COIL ACTIVATE – CYLINDER 3: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| O EN65-016  | IGNITION COIL ACTIVATE – CYLINDER 5: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| I EN65-017  | INTELLIGENT SPEED SIGNAL (VEHICLE SPEED) : PWM, DUTY CYCLE RANGE 30% to 70 %                                   |
| O EN65-020  | AIR CONDITIONING COMPRESSOR CLUTCH RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                    |
| I EN65-034  | BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED                                                       |
| O EN65-040  | IGNITION COIL ACTIVATE – CYLINDER 2: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| O EN65-041  | IGNITION COIL ACTIVATE – CYLINDER 4: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| O EN65-042  | IGNITION COIL ACTIVATE – CYLINDER 6: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                               |
| O EN65-044  | COOLING FAN MODULE CONTROL: PWM, 140Hz, POSITIVE DUTY CYCLE RANGE 7% – 95%                                     |
| I EN65-056  | SPEED CONTROL STATUS 1 ON / OFF: GROUND = ON; 5 V = OFF                                                        |
| I EN65-057  | SPEED CONTROL STATUS 2 ACTIVE / INACTIVE: GROUND = ACTIVE; 5 V = INACTIVE                                      |
| O EN65-065  | FUEL INJECTOR DRIVE – CYLINDER 1: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| O EN65-066  | FUEL INJECTOR DRIVE – CYLINDER 3: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| O EN65-067  | FUEL INJECTOR DRIVE – CYLINDER 5: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| I EN65-084  | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                                  |
| O EN65-092  | FUEL INJECTOR DRIVE – CYLINDER 2: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| O EN65-093  | FUEL INJECTOR DRIVE – CYLINDER 4: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| O EN65-094  | FUEL INJECTOR DRIVE – CYLINDER 6: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                  |
| O EN65-099  | FUEL PUMP RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND                                             |

## COMPONENTS

| Component                                | Connector(s) | Connector Description | Location                                      |
|------------------------------------------|--------------|-----------------------|-----------------------------------------------|
| AIR CONDITIONING COMPRESSOR CLUTCH RELAY | —            | —                     | POWER DISTRIBUTION FUSE BOX R6                |
| AIR CONDITIONING COMPRESSOR CLUTCH       | EN30         | 2-WAY / BLACK         | ADJACENT TO ENGINE OIL FILTER                 |
| AIR CONDITIONING PRESSURE SENSOR         | JB106        | 4-WAY / BLACK         | BEHIND FRONT LH WHEEL ARCH LINER              |
| BRAKE CANCEL SWITCH                      | PA2          | 2-WAY / BLACK         | TOP OF BRAKE PEDAL                            |
| BRAKE ON / OFF SWITCH                    | PA3          | 3-WAY / BLACK         | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX                | CA75         | 8-WAY / GREY          | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                          | CA76         | 16-WAY / GREEN        |                                               |
|                                          | CA77         | 2-WAY / GREY          |                                               |
|                                          | CA78         | 16-WAY / GREY         |                                               |
|                                          | IP1          | 14-WAY / GREEN        |                                               |
|                                          | IP2          | 16-WAY / GREY         |                                               |
|                                          | IP3          | 2-WAY / GREY          |                                               |
|                                          | IP4          | 14-WAY / GREY         |                                               |
|                                          | JB50         | 4-WAY / GREY          |                                               |
|                                          | JB51         | 16-WAY / BLUE         |                                               |
|                                          | JB52         | 2-WAY / BLACK         |                                               |
| CLUTCH CANCEL SWITCH                     | PA4          | 5-WAY / BLACK         | TOP OF CLUTCH PEDAL                           |
| COOLING FAN – LH                         | GC2          | 2-WAY / BLACK         | COOLING PACK LH SIDE                          |
| COOLING FAN – RH                         | GC1          | 2-WAY / BLACK         | COOLING PACK RH SIDE                          |
| COOLING FAN MODULE                       | JB188        | 2-WAY / BLACK         | ADJACENT TO RADIATOR LH SIDE                  |
|                                          | PWM1         | 4-WAY                 |                                               |
| ENGINE CONTROL MODULE (2.0L)             | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE    |
| FUEL INJECTOR 1                          | IL1          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL INJECTOR 2                          | IL4          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL INJECTOR 3                          | IL2          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL INJECTOR 4                          | IL5          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL INJECTOR 5                          | IL3          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL INJECTOR 6                          | IL6          | 2-WAY / BLACK         | FUEL RAIL                                     |
| FUEL PUMP (2.0L)                         | CA415        | 6-WAY / BLACK         | FUEL TANK                                     |
| FUEL PUMP RELAY                          | —            | —                     | POWER DISTRIBUTION FUSE BOX R11               |
| IGNITION CAPACITOR                       | EN94         | 2-WAY / BLACK         | BELOW AIR INTAKE                              |
| IGNITION MODULE AND COIL 1               | EN51         | 4-WAY                 | BANK 1 CYLINDER HEAD                          |
| IGNITION MODULE AND COIL 2               | EN54         | 4-WAY                 | BANK 2 CYLINDER HEAD                          |
| IGNITION MODULE AND COIL 3               | EN52         | 4-WAY                 | BANK 1 CYLINDER HEAD                          |
| IGNITION MODULE AND COIL 4               | EN55         | 4-WAY                 | BANK 2 CYLINDER HEAD                          |
| IGNITION MODULE AND COIL 5               | EN53         | 4-WAY                 | BANK 1 CYLINDER HEAD                          |
| IGNITION MODULE AND COIL 6               | EN56         | 4-WAY                 | BANK 2 CYLINDER HEAD                          |
| POWER DISTRIBUTION FUSE BOX              | —            | —                     | ENGINE COMPARTMENT LH SIDE                    |
| SPEED CONTROL SWITCHES                   | SW5          | 4-WAY / BLACK         | STEERING WHEEL                                |
| SPEED CONTROL CONTROL MODULE             | JB161        | 10-WAY / BLACK        | ENGINE COMPARTMENT, BULKHEAD LH SIDE          |

## HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                                | Location                                  |
|-----------|----------------------------------------------------------------------|-------------------------------------------|
| CA5       | 12-WAY / BLACK / CABIN HARNESS TO FUEL TANK LINK LEAD                | TOP OF FUEL TANK                          |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                      | BELOW THE GLOVEBOX                        |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                                   | LH LOWER A POST                           |
| EN4       | 12-WAY / BLACK / ENGINE HARNESS TO INJECTOR RAIL HARNESS             | ADJACENT TO THE TRANSMISSION BELL HOUSING |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS              | ADJACENT TO LH SUSPENSION TURRET          |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS     | LH LOWER A POST                           |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS               | ADJACENT TO CENTRAL JUNCTION FUSE BOX     |
| JB187     | 2-WAY / BLACK / JUNCTION BOX HARNESS TO COOLING FAN MODULE LINK LEAD | ADJACENT TO RADIATOR LH SIDE              |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS                | ADJACENT TO FOOT PEDALS                   |

## GROUNDS

| Ground | Location                                        |
|--------|-------------------------------------------------|
| G8     | ENGINE COMPARTMENT / RH INNER WHEEL ARCH        |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY |
| G17    | ENGINE COMPARTMENT / ON GENERATOR BRACKET       |
| G35    | PASSENGER COMPARTMENT / LH LOWER E POST         |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



## CONTROL MODULE PIN-OUT INFORMATION

### Transmission Control Module

| Pin         | Description and Characteristic                                                                            |
|-------------|-----------------------------------------------------------------------------------------------------------|
| O JB131-03  | 2 / 4 BRAKE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                   |
| O JB131-04  | 2 / 4 BRAKE TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                         |
| I JB131-05  | OUTPUT SPEED SENSOR SIGNAL: 18 PULSES PER OUTPUT SHAFT REVOLUTION                                         |
| B+ JB131-06 | BATTERY POWER SUPPLY: B+                                                                                  |
| I JB131-07  | RANGE SENSOR – 3: 3 = GROUND; NOT IN 3 = OPEN CIRCUIT                                                     |
| I JB131-08  | RANGE SENSOR – 2: 2 = GROUND; NOT IN 2 = OPEN CIRCUIT                                                     |
| PG JB131-09 | POWER GROUND: GROUND                                                                                      |
| O JB131-10  | REDUCTION TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                           |
| C JB131-12  | CAN – 1                                                                                                   |
| C JB131-13  | CAN – 2                                                                                                   |
| O JB131-14  | SHIFT SOLENOID B DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-15  | SHIFT SOLENOID A DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-16  | TCC PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                           |
| SG JB131-17 | SOLENOID GROUND RETURN: GROUND                                                                            |
| O JB131-18  | LINE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                          |
| SG JB131-20 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-21  | INTERMEDIATE SPEED SENSOR SIGNAL: 54 PULSES PER INTERMEDIATE SHAFT REVOLUTION*                            |
| I JB131-24  | TURBINE SPEED SENSOR SIGNAL: 36 PULSES PER ENGINE REVOLUTION                                              |
| I JB131-25  | RANGE SENSOR – N: N = GROUND; NOT IN N = OPEN CIRCUIT                                                     |
| I JB131-26  | RANGE SENSOR – R: R = GROUND; NOT IN R = OPEN CIRCUIT                                                     |
| I JB131-27  | RANGE SENSOR – D: D = GROUND; NOT IN D = OPEN CIRCUIT                                                     |
| I JB131-30  | RANGE SENSOR – P: P = GROUND; NOT IN P = OPEN CIRCUIT                                                     |
| C JB131-33  | CAN + 1                                                                                                   |
| C JB131-34  | CAN + 2                                                                                                   |
| B+ JB131-36 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |
| PG JB131-38 | POWER GROUND: GROUND                                                                                      |
| I JB131-39  | FLUID TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES |
| I JB131-45  | D – 4 SWITCH: SWITCH ACTIVATED = GROUND                                                                   |
| I JB131-47  | MODE SWITCH: “SPORT” SELECTED = GROUND                                                                    |
| O JB131-52  | SHIFT SOLENOID C DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-53  | LOW CLUTCH TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                          |
| B+ JB131-54 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |

\* IN 1ST – 4TH AND R, THE INTERMEDIATE SHAFT SPEED IS THE SAME AS THE OUTPUT SHAFT SPEED. IN 5TH, THE INTERMEDIATE SHAFT SPEED IS MULTIPLIED BY 1.2.

### Engine Control Module (2.5L & 3.0L)

| Pin         | Description and Characteristic                                                                       |
|-------------|------------------------------------------------------------------------------------------------------|
| SG EN16-019 | SENSOR GROUND 1: GROUND                                                                              |
| I EN16-026  | MANUAL TRANSMISSION OUTPUT SPEED SENSOR SIGNAL: PULSED SIGNAL, 26 PULSES PER TRANSMISSION REVOLUTION |
| I EN16-031  | CLUTCH PEDAL SAFETY SWITCH (MANUAL TRANSMISSION): NORMALLY OPEN / B+ WHEN ACTIVATED                  |
| I EN16-033  | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                                        |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 04.1

### COMPONENTS: Automatic Transmission

| Component                   | Connector(s) | Connector Description | Location                       |
|-----------------------------|--------------|-----------------------|--------------------------------|
| AUTOMATIC TRANSMISSION      | JB155        | 18-WAY / BLACK        | ENGINE COMPARTMENT             |
| IGNITION SWITCH             | IP18         | 7-WAY / BLACK         | STEERING COLUMN                |
| J GATE ASSEMBLY             | IP14         | 16-WAY / GREEN        | CENTER CONSOLE                 |
| POWER DISTRIBUTION FUSE BOX | —            | —                     | ENGINE COMPARTMENT LH SIDE     |
| TCM RELAY                   | —            | —                     | POWER DISTRIBUTION FUSE BOX R8 |
| TRANSMISSION CONTROL MODULE | JB131        | 37-WAY / BLUE         | LOWER LH A POST                |
| TRANSMISSION RANGE SENSOR   | JB156        | 10-WAY / BLACK        | TOP OF TRANSMISSION            |

### COMPONENTS: Manual Transmission

| Component                           | Connector(s) | Connector Description | Location                                   |
|-------------------------------------|--------------|-----------------------|--------------------------------------------|
| CLUTCH CANCEL SWITCH                | PA4          | 5-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| CLUTCH PEDAL SAFETY SWITCH          | PA5          | 2-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| ENGINE CONTROL MODULE (2.5L & 3.0L) | EN16         | 134-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| OUTPUT SPEED SENSOR                 | EN86         | 3-WAY / BLACK         | DIFFERENTIAL OUTPUT SHAFT HOUSING          |
| REVERSE LAMPS SWITCH                | EN85         | 2-WAY / BLACK         | TOP OF TRANSMISSION                        |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

### GROUND

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### Transmission Control Module

| Pin         | Description and Characteristic                                                                            |
|-------------|-----------------------------------------------------------------------------------------------------------|
| O JB131-03  | 2 / 4 BRAKE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                   |
| O JB131-04  | 2 / 4 BRAKE TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                         |
| I JB131-05  | OUTPUT SPEED SENSOR SIGNAL: 18 PULSES PER OUTPUT SHAFT REVOLUTION                                         |
| B+ JB131-06 | BATTERY POWER SUPPLY: B+                                                                                  |
| I JB131-07  | RANGE SENSOR – 3: 3 = GROUND; NOT IN 3 = OPEN CIRCUIT                                                     |
| I JB131-08  | RANGE SENSOR – 2: 2 = GROUND; NOT IN 2 = OPEN CIRCUIT                                                     |
| PG JB131-09 | POWER GROUND: GROUND                                                                                      |
| O JB131-10  | REDUCTION TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                           |
| C JB131-12  | CAN – 1                                                                                                   |
| C JB131-13  | CAN – 2                                                                                                   |
| O JB131-14  | SHIFT SOLENOID B DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-15  | SHIFT SOLENOID A DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-16  | TCC PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                           |
| SG JB131-17 | SOLENOID GROUND RETURN: GROUND                                                                            |
| O JB131-18  | LINE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                          |
| SG JB131-20 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-21  | INTERMEDIATE SPEED SENSOR SIGNAL: 54 PULSES PER INTERMEDIATE SHAFT REVOLUTION*                            |
| I JB131-24  | TURBINE SPEED SENSOR SIGNAL: 36 PULSES PER ENGINE REVOLUTION                                              |
| I JB131-25  | RANGE SENSOR – N: N = GROUND; NOT IN N = OPEN CIRCUIT                                                     |
| I JB131-26  | RANGE SENSOR – R: R = GROUND; NOT IN R = OPEN CIRCUIT                                                     |
| I JB131-27  | RANGE SENSOR – D: D = GROUND; NOT IN D = OPEN CIRCUIT                                                     |
| I JB131-30  | RANGE SENSOR – P: P = GROUND; NOT IN P = OPEN CIRCUIT                                                     |
| C JB131-33  | CAN + 1                                                                                                   |
| C JB131-34  | CAN + 2                                                                                                   |
| B+ JB131-36 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |
| PG JB131-38 | POWER GROUND: GROUND                                                                                      |
| I JB131-39  | FLUID TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES |
| SG JB131-42 | SENSOR GROUND: GROUND                                                                                     |
| SG JB131-44 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-45  | D – 4 SWITCH: SWITCH ACTIVATED = GROUND                                                                   |
| SG JB131-46 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-47  | MODE SWITCH: "SPORT" SELECTED = GROUND                                                                    |
| O JB131-52  | SHIFT SOLENOID C DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-53  | LOW CLUTCH TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                          |
| B+ JB131-54 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |

\* IN 1ST – 4TH AND R, THE INTERMEDIATE SHAFT SPEED IS THE SAME AS THE OUTPUT SHAFT SPEED. IN 5TH, THE INTERMEDIATE SHAFT SPEED IS MULTIPLIED BY 1.2.

### Engine Control Module (2.0L)

| Pin        | Description and Characteristic                                |
|------------|---------------------------------------------------------------|
| I EN65-084 | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED |
| I EN65-085 | CLUTCH SAFETY CIRCUIT (MANUAL TRANSMISSION): B+               |

### Engine Control Module (2.5L & 3.0L)

| Pin        | Description and Characteristic                                                      |
|------------|-------------------------------------------------------------------------------------|
| I EN16-031 | CLUTCH PEDAL SAFETY SWITCH (MANUAL TRANSMISSION): NORMALLY OPEN / B+ WHEN ACTIVATED |
| I EN16-033 | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                       |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 04.2

### COMPONENTS: Automatic Transmission

| Component                   | Connector(s) | Connector Description | Location                       |
|-----------------------------|--------------|-----------------------|--------------------------------|
| AUTOMATIC TRANSMISSION      | JB155        | 18-WAY / BLACK        | ENGINE COMPARTMENT             |
| IGNITION SWITCH             | IP18         | 7-WAY / BLACK         | STEERING COLUMN                |
| J GATE ASSEMBLY             | IP14         | 16-WAY / GREEN        | CENTER CONSOLE                 |
| POWER DISTRIBUTION FUSE BOX | —            | —                     | ENGINE COMPARTMENT LH SIDE     |
| TCM RELAY                   | —            | —                     | POWER DISTRIBUTION FUSE BOX R8 |
| TRANSMISSION CONTROL MODULE | JB131        | 37-WAY / BLUE         | LOWER LH A POST                |
| TRANSMISSION RANGE SENSOR   | JB156        | 10-WAY / BLACK        | TOP OF TRANSMISSION            |

### COMPONENTS: Manual Transmission

| Component                           | Connector(s) | Connector Description | Location                                   |
|-------------------------------------|--------------|-----------------------|--------------------------------------------|
| CLUTCH CANCEL SWITCH                | PA4          | 5-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| CLUTCH PEDAL SAFETY SWITCH          | PA5          | 2-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| ENGINE CONTROL MODULE (2.0L)        | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| ENGINE CONTROL MODULE (2.5L & 3.0L) | EN16         | 134-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| REVERSE LAMPS SWITCH                | EN85         | 2-WAY / BLACK         | TOP OF TRANSMISSION                        |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

### GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

## CONTROL MODULE PIN-OUT INFORMATION

### Transmission Control Module

| Pin         | Description and Characteristic                                                                            |
|-------------|-----------------------------------------------------------------------------------------------------------|
| O JB131-03  | 2 / 4 BRAKE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                   |
| O JB131-04  | 2 / 4 BRAKE TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                         |
| I JB131-05  | OUTPUT SPEED SENSOR SIGNAL: 18 PULSES PER OUTPUT SHAFT REVOLUTION                                         |
| B+ JB131-06 | BATTERY POWER SUPPLY: B+                                                                                  |
| I JB131-07  | RANGE SENSOR – 3: 3 = GROUND; NOT IN 3 = OPEN CIRCUIT                                                     |
| I JB131-08  | RANGE SENSOR – 2: 2 = GROUND; NOT IN 2 = OPEN CIRCUIT                                                     |
| PG JB131-09 | POWER GROUND: GROUND                                                                                      |
| O JB131-10  | REDUCTION TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                           |
| C JB131-12  | CAN – 1                                                                                                   |
| C JB131-13  | CAN – 2                                                                                                   |
| O JB131-14  | SHIFT SOLENOID B DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-15  | SHIFT SOLENOID A DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-16  | TCC PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                           |
| SG JB131-17 | SOLENOID GROUND RETURN: GROUND                                                                            |
| O JB131-18  | LINE PRESSURE CONTROL SOLENOID DRIVE: PWM, 1.25 kHz, POSITIVE DUTY CYCLE 5 – 95%                          |
| SG JB131-20 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-21  | INTERMEDIATE SPEED SENSOR SIGNAL: 54 PULSES PER INTERMEDIATE SHAFT REVOLUTION*                            |
| I JB131-24  | TURBINE SPEED SENSOR SIGNAL: 36 PULSES PER ENGINE REVOLUTION                                              |
| I JB131-25  | RANGE SENSOR – N: N = GROUND; NOT IN N = OPEN CIRCUIT                                                     |
| I JB131-26  | RANGE SENSOR – R: R = GROUND; NOT IN R = OPEN CIRCUIT                                                     |
| I JB131-27  | RANGE SENSOR – D: D = GROUND; NOT IN D = OPEN CIRCUIT                                                     |
| I JB131-30  | RANGE SENSOR – P: P = GROUND; NOT IN P = OPEN CIRCUIT                                                     |
| C JB131-33  | CAN + 1                                                                                                   |
| C JB131-34  | CAN + 2                                                                                                   |
| B+ JB131-36 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |
| PG JB131-38 | POWER GROUND: GROUND                                                                                      |
| I JB131-39  | FLUID TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES |
| SG JB131-42 | SENSOR GROUND: GROUND                                                                                     |
| SG JB131-44 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-45  | D – 4 SWITCH: SWITCH ACTIVATED = GROUND                                                                   |
| SG JB131-46 | SENSOR GROUND: GROUND                                                                                     |
| I JB131-47  | MODE SWITCH: "SPORT" SELECTED = GROUND                                                                    |
| O JB131-52  | SHIFT SOLENOID C DRIVE: B+ TO ACTIVATE                                                                    |
| O JB131-53  | LOW CLUTCH TIMING SOLENOID DRIVE: B+ TO ACTIVATE                                                          |
| B+ JB131-54 | IGNITION SWITCHED POWER SUPPLY: B+                                                                        |

\* IN 1ST – 4TH AND R, THE INTERMEDIATE SHAFT SPEED IS THE SAME AS THE OUTPUT SHAFT SPEED. IN 5TH, THE INTERMEDIATE SHAFT SPEED IS MULTIPLIED BY 1.2.

### Engine Control Module (2.0L)

| Pin        | Description and Characteristic                                |
|------------|---------------------------------------------------------------|
| I EN65-084 | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED |
| I EN65-085 | CLUTCH SAFETY CIRCUIT (MANUAL TRANSMISSION): B+               |

### Engine Control Module (2.5L & 3.0L)

| Pin        | Description and Characteristic                                                      |
|------------|-------------------------------------------------------------------------------------|
| I EN16-031 | CLUTCH PEDAL SAFETY SWITCH (MANUAL TRANSMISSION): NORMALLY OPEN / B+ WHEN ACTIVATED |
| I EN16-033 | CLUTCH CANCEL SWITCH: NORMALLY CLOSED / GROUND WHEN ACTIVATED                       |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 04.3

### COMPONENTS: Automatic Transmission

| Component                   | Connector(s) | Connector Description | Location                       |
|-----------------------------|--------------|-----------------------|--------------------------------|
| AUTOMATIC TRANSMISSION      | JB155        | 18-WAY / BLACK        | ENGINE COMPARTMENT             |
| IGNITION SWITCH             | IP18         | 7-WAY / BLACK         | STEERING COLUMN                |
| J GATE ASSEMBLY             | IP14         | 16-WAY / GREEN        | CENTER CONSOLE                 |
| POWER DISTRIBUTION FUSE BOX | —            | —                     | ENGINE COMPARTMENT LH SIDE     |
| TCM RELAY                   | —            | —                     | POWER DISTRIBUTION FUSE BOX R8 |
| TRANSMISSION CONTROL MODULE | JB131        | 37-WAY / BLUE         | LOWER LH A POST                |
| TRANSMISSION RANGE SENSOR   | JB156        | 10-WAY / BLACK        | TOP OF TRANSMISSION            |

### COMPONENTS: Manual Transmission

| Component                           | Connector(s) | Connector Description | Location                                   |
|-------------------------------------|--------------|-----------------------|--------------------------------------------|
| CLUTCH CANCEL SWITCH                | PA4          | 5-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| CLUTCH PEDAL SAFETY SWITCH          | PA5          | 2-WAY / BLACK         | TOP OF CLUTCH PEDAL                        |
| ENGINE CONTROL MODULE (2.0L)        | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| ENGINE CONTROL MODULE (2.5L & 3.0L) | EN16         | 134-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| REVERSE LAMPS SWITCH                | EN85         | 2-WAY / BLACK         | TOP OF TRANSMISSION                        |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

### GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Anti-Lock Braking Control Module**

| Pin | Description and Characteristic                                             |
|-----|----------------------------------------------------------------------------|
| PG  | JB45-01 MOTOR GROUND: GROUND                                               |
| B+  | JB45-02 BATTERY POWER SUPPLY – MOTOR: B+                                   |
| PG  | JB45-05 POWER GROUND: GROUND                                               |
| B+  | JB45-06 BATTERY POWER SUPPLY: B+                                           |
| I   | JB45-12 LH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION |
| SS  | JB45-13 LH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                      |
| I   | JB45-14 LH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION  |
| SS  | JB45-15 RH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                     |
| I   | JB45-16 RH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION |
| B+  | JB45-23 IGNITION SWITCHED POWER SUPPLY: B+                                 |
| C   | JB45-24 CAN +                                                              |
| O   | JB45-28 LH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                     |
| O   | JB45-30 RH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                      |
| I   | JB45-31 RH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION  |
| I   | JB45-32 BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED           |
| C   | JB45-40 CAN –                                                              |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

**COMPONENTS**

| Component                               | Connector(s)                 | Connector Description                                            | Location                                      |
|-----------------------------------------|------------------------------|------------------------------------------------------------------|-----------------------------------------------|
| ANTI-LOCK BRAKING SYSTEM CONTROL MODULE | JB45                         | 42-WAY / BROWN                                                   | ENGINE COMPARTMENT RH SIDE                    |
| BRAKE ON / OFF SWITCH                   | PA3                          | 3-WAY / BLACK                                                    | TOP OF BRAKE PEDAL                            |
| CAPACITOR (ABS / DSC)                   | JB195                        | 2-WAY                                                            | ADJACENT TO MODULATOR                         |
| CENTRAL JUNCTION FUSE BOX               | CA75<br>CA76<br>CA77<br>CA78 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY  | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                         | IP1<br>IP2<br>IP3<br>IP4     | 14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY |                                               |
|                                         | JB50<br>JB51<br>JB52         | 4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK                   |                                               |
| VACUUM MODULE                           | VM1<br>VM2<br>VM3            | —<br>—<br>—                                                      | UNDER BATTERY TRAY                            |
| VACUUM PUMP                             | VPU                          | —                                                                | ADJACENT TO BRAKE SERVO                       |
| WHEEL SPEED SENSOR – LH FRONT           | LF1                          | 2-WAY / BLACK                                                    | LH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – LH REAR            | CA55                         | 2-WAY / BLACK                                                    | LH REAR WHEEL HUB                             |
| WHEEL SPEED SENSOR – RH FRONT           | RF1                          | 2-WAY / BLACK                                                    | RH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – RH REAR            | CA60                         | 2-WAY / BLACK                                                    | RH REAR WHEEL HUB                             |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                  | Location                              |
|-----------|--------------------------------------------------------|---------------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS        | BELOW THE GLOVEBOX                    |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                     | LH LOWER A POST                       |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB15      | 2-WAY / BLACK / ABS LINK LEAD                          | BEHIND FRONT LH WHEELARCH LINER       |
| JB133     | 2-WAY / BLACK / ABS LINK LEAD                          | BEHIND LH WHEELARCH LINER             |
| VP1       | 2-WAY / VACUUM PUMP LINK LEAD                          | ENGINE COMPARTMENT, LH REAR           |

**GROUND**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G18    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Dynamic Stability Control Control Module**

| Pin | Description and Characteristic                                                                  |
|-----|-------------------------------------------------------------------------------------------------|
| PG  | JB185-01 MOTOR GROUND: GROUND                                                                   |
| B+  | JB185-02 BATTERY POWER SUPPLY – MOTOR: B+                                                       |
| PG  | JB185-05 POWER GROUND: GROUND                                                                   |
| B+  | JB185-06 BATTERY POWER SUPPLY: B+                                                               |
| I   | JB185-12 LH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION                     |
| SS  | JB185-13 LH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                                          |
| I   | JB185-14 LH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION                      |
| SS  | JB185-15 RH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                                         |
| I   | JB185-16 RH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION                     |
| SG  | JB185-21 SENSOR GROUND – YAW RATE, STEERING ANGLE SENSORS: GROUND                               |
| B+  | JB185-23 IGNITION SWITCHED POWER SUPPLY: B+                                                     |
| C   | JB185-24 CAN +                                                                                  |
| SG  | JB185-25 SENSOR GROUND – BRAKE PRESSURE SENSOR: GROUND                                          |
| I   | JB185-26 BRAKE PRESSURE SENSOR SIGNAL, NOMINAL 0 – 5 V: VOLTAGE INCREASES AS PRESSURE INCREASES |
| I   | JB185-27 DYNAMIC STABILITY CONTROL SWITCH: NORMALLY OPEN / GROUND WHEN ACTIVATED                |
| O   | JB185-28 LH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                                         |
| O   | JB185-30 RH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                                          |
| I   | JB185-31 RH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION                      |
| I   | JB185-32 BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED                               |
| SS  | JB185-39 YAW RATE, STEERING ANGLE SENSORS SUPPLY VOLTAGE: B+                                    |
| C   | JB185-40 CAN –                                                                                  |
| SS  | JB185-42 BRAKE PRESSURE SENSOR SUPPLY VOLTAGE: NOMINAL 5 V                                      |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

**COMPONENTS**

| Component                                  | Connector(s)                 | Connector Description                                           | Location                                      |
|--------------------------------------------|------------------------------|-----------------------------------------------------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH                      | PA3                          | 3-WAY / BLACK                                                   | TOP OF BRAKE PEDAL                            |
| BRAKE PRESSURE SENSOR                      | JB89                         | 3-WAY / BLACK                                                   | ON DYNAMIC STABILITY CONTROL MODULATOR        |
| CAPACITOR (ABS / DSC)                      | JB195                        | 2-WAY                                                           | ADJACENT TO MODULATOR                         |
| CENTRAL JUNCTION FUSE BOX                  | CA75<br>CA76<br>CA77<br>CA78 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                            | IP1                          | 14-WAY / GREEN                                                  |                                               |
|                                            | IP2                          | 16-WAY / GREY                                                   |                                               |
|                                            | IP3                          | 2-WAY / GREY                                                    |                                               |
|                                            | IP4                          | 14-WAY / GREY                                                   |                                               |
|                                            | JB50                         | 4-WAY / GREY                                                    |                                               |
|                                            | JB51                         | 16-WAY / BLUE                                                   |                                               |
|                                            | JB52                         | 2-WAY / BLACK                                                   |                                               |
| DYNAMIC STABILITY CONTROL CONTROL MODULE   | JB185                        | 42-WAY / BLUE                                                   | ENGINE COMPARTMENT RH SIDE                    |
| DYNAMIC STABILITY CONTROL SWITCH           | IP29                         | 6-WAY / BLACK                                                   | INSTRUMENT PANEL                              |
| STEERING ANGLE SENSOR                      | IP19                         | 4-WAY / BLACK                                                   | STEERING COLUMN                               |
| VACUUM MODULE                              | VM1<br>VM2<br>VM3            | —<br>—<br>—                                                     | UNDER BATTERY TRAY                            |
| VACUUM PUMP                                | VPU                          | —                                                               | ADJACENT TO BRAKE SERVO                       |
| WHEEL SPEED SENSOR – LH FRONT (ALL)        | LF1                          | 2-WAY / BLACK                                                   | LH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – LH REAR (2.5L & 3.0L) | CA55                         | 2-WAY / BLACK                                                   | LH REAR WHEEL HUB                             |
| WHEEL SPEED SENSOR – LH REAR (2.0L)        | LR1                          | 2-WAY / BLACK                                                   | LH REAR WHEEL HUB                             |
| WHEEL SPEED SENSOR – RH FRONT (ALL)        | RF1                          | 2-WAY / BLACK                                                   | RH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – RH REAR (2.5L & 3.0L) | CA60                         | 2-WAY / BLACK                                                   | RH REAR WHEEL HUB                             |
| WHEEL SPEED SENSOR – RH REAR (2.0L)        | RR1                          | 2-WAY / BLACK                                                   | RH REAR WHEEL HUB                             |
| YAW RATE SENSOR                            | IP20                         | 4-WAY / BLACK                                                   | BEHIND CENTER CONSOLE                         |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                   | BELOW THE GLOVEBOX                    |
| CA55      | 2-WAY / BLACK / 2.0L LH REAR WHEEL SPEED SENSOR LINK LEAD         | LH REAR WHEEL HUB                     |
| CA60      | 2-WAY / BLACK / 2.0L RH REAR WHEEL SPEED SENSOR LINK LEAD         | RH REAR WHEEL HUB                     |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                                | LH LOWER A POST                       |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB15      | 2-WAY / BLACK / ABS LINK LEAD                                     | BEHIND FRONT LH WHEELARCH LINER       |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB133     | 2-WAY / BLACK / ABS LINK LEAD                                     | BEHIND LH WHEELARCH LINER             |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS             | ADJACENT TO FOOT PEDALS               |
| VP1       | 2-WAY / VACUUM PUMP LINK LEAD                                     | ENGINE COMPARTMENT, LH REAR           |

**GROUND**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G18    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Anti-Lock Braking Control Module**

| Pin | Description and Characteristic                                              |
|-----|-----------------------------------------------------------------------------|
| PG  | JB197-01 MOTOR GROUND: GROUND                                               |
| B+  | JB197-02 BATTERY POWER SUPPLY – MOTOR: B+                                   |
| PG  | JB197-05 POWER GROUND: GROUND                                               |
| B+  | JB197-06 BATTERY POWER SUPPLY: B+                                           |
| I   | JB197-12 LH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION |
| SS  | JB197-13 LH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                      |
| I   | JB197-14 LH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION  |
| SS  | JB197-15 RH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                     |
| I   | JB197-16 RH FRONT WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION |
| B+  | JB197-23 IGNITION SWITCHED POWER SUPPLY: B+                                 |
| C   | JB197-24 CAN +                                                              |
| I   | JB197-27 TRACTION CONTROL SWITCH: NORMALLY OPEN / GROUND WHEN ACTIVATED     |
| O   | JB197-28 LH FRONT WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                     |
| O   | JB197-30 RH REAR WHEEL SPEED SENSOR SUPPLY VOLTAGE: B+                      |
| I   | JB197-31 RH REAR WHEEL SPEED SENSOR SIGNAL: 32 PULSES PER WHEEL REVOLUTION  |
| I   | JB197-32 BRAKE ON / OFF SWITCH: NORMALLY OPEN / B+ WHEN ACTIVATED           |
| C   | JB197-40 CAN –                                                              |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

**COMPONENTS**

| Component                                           | Connector(s)                 | Connector Description                                            | Location                                      |
|-----------------------------------------------------|------------------------------|------------------------------------------------------------------|-----------------------------------------------|
| ANTI-LOCK BRAKING / TRACTION CONTROL CONTROL MODULE | JB197                        | 42-WAY / BROWN                                                   | ENGINE COMPARTMENT RH SIDE                    |
| BRAKE ON / OFF SWITCH                               | PA3                          | 3-WAY / BLACK                                                    | TOP OF BRAKE PEDAL                            |
| CAPACITOR (ABS / DSC)                               | JB195                        | 2-WAY                                                            | ADJACENT TO MODULATOR                         |
| CENTRAL JUNCTION FUSE BOX                           | CA75<br>CA76<br>CA77<br>CA78 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY  | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                                     | IP1<br>IP2<br>IP3<br>IP4     | 14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY |                                               |
|                                                     | JB50<br>JB51<br>JB52         | 4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK                   |                                               |
| TRACTION CONTROL SWITCH                             | IP29                         | 6-WAY / BLACK                                                    | INSTRUMENT PANEL                              |
| VACUUM MODULE                                       | VM1<br>VM2<br>VM3            | —<br>—<br>—                                                      | UNDER BATTERY TRAY                            |
| VACUUM PUMP                                         | VPU                          | —                                                                | ADJACENT TO BRAKE SERVO                       |
| WHEEL SPEED SENSOR – LH FRONT                       | LF1                          | 2-WAY / BLACK                                                    | LH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – LH REAR                        | LR1                          | 2-WAY / BLACK                                                    | LH REAR WHEEL HUB                             |
| WHEEL SPEED SENSOR – RH FRONT                       | RF1                          | 2-WAY / BLACK                                                    | RH FRONT WHEEL HUB                            |
| WHEEL SPEED SENSOR – RH REAR                        | RR1                          | 2-WAY / BLACK                                                    | RH REAR WHEEL HUB                             |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                   | BELOW THE GLOVEBOX                    |
| CA55      | 2-WAY / BLACK / 2.0L LH REAR WHEEL SPEED SENSOR LINK LEAD         | LH REAR WHEEL HUB                     |
| CA60      | 2-WAY / BLACK / 2.0L RH REAR WHEEL SPEED SENSOR LINK LEAD         | RH REAR WHEEL HUB                     |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                                | LH LOWER A POST                       |
| JB15      | 2-WAY / BLACK / ABS LINK LEAD                                     | BEHIND FRONT LH WHEELARCH LINER       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB133     | 2-WAY / BLACK / ABS LINK LEAD                                     | BEHIND LH WHEELARCH LINER             |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS             | ADJACENT TO FOOT PEDALS               |
| VP1       | 2-WAY / VACUUM PUMP LINK LEAD                                     | ENGINE COMPARTMENT, LH REAR           |

**GROUND**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G18    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

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## CONTROL MODULE PIN-OUT INFORMATION

### Air Conditioning Control Module: Manual

| Pin | Description and Characteristic                                                                                        |
|-----|-----------------------------------------------------------------------------------------------------------------------|
| O   | AC1-04 FRESH / RECIRCULATION FLAP ACTUATOR DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO B+ OR TO GROUND              |
| O   | AC1-05 FRESH / RECIRCULATION FLAP ACTUATOR DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO B+ OR TO GROUND              |
| O   | AC1-06 DEFROST DOOR ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                      |
| O   | AC1-07 DEFROST DOOR ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                      |
| O   | AC1-08 PANEL / FLOOR ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                     |
| O   | AC1-09 PANEL / FLOOR ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                     |
| O   | AC1-10 AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND             |
| O   | AC1-11 AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND             |
| O   | AC1-12 AIR TEMPERATURE BLEND ACTUATOR POWER SUPPLY: B+                                                                |
| O   | AC1-13 DEFROST DOOR ACTUATOR POWER SUPPLY: B+                                                                         |
| I   | AC1-14 EVAPORATOR TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES |
| I   | AC1-15 DISCHARGE TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES  |
| SG  | AC1-16 SENSOR GROUND: GROUND                                                                                          |
| O   | AC1-20 DEFROST DOOR ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                      |
| O   | AC1-21 DEFROST DOOR ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                      |
| O   | AC1-22 PANEL / FLOOR ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                     |
| O   | AC1-23 PANEL / FLOOR ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                     |
| O   | AC1-24 AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND             |
| O   | AC1-25 AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND             |
| O   | AC1-26 PANEL / FLOOR ACTUATOR POWER SUPPLY: B+                                                                        |
| B+  | IP101-01 BATTERY SAVER POWER SUPPLY: B+                                                                               |
| B+  | IP101-02 IGNITION SWITCHED POWER SUPPLY: B+                                                                           |
| O   | IP101-03 WINDSHIELD HEATER RELAY DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                 |
| O   | IP101-04 HEATED REAR WINDOW RELAY DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                |
| I   | IP101-07 BLOWER SPEED SENSE: B+ WHEN BLOWER OFF, 0 V WHEN BLOWER RUNNING                                              |
| C   | IP101-09 CAN +                                                                                                        |
| C   | IP101-10 CAN –                                                                                                        |
| B+  | IP101-14 BATTERY POWER SUPPLY: B+                                                                                     |
| PG  | IP101-15 POWER GROUND: GROUND                                                                                         |
| I   | IP101-20 DIMMER CONTROLLED ILLUMINATION: PWM, 80Hz, GROUND = 0% DUTY CYCLE, B+ = 100% DUTY CYCLE                      |
| C   | IP101-22 CAN +                                                                                                        |
| C   | IP101-23 CAN –                                                                                                        |
| O   | IP135-1 BLOWER SPEED CONTROL 1: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                         |
| PG  | IP135-2 BLOWER GROUND: GROUND                                                                                         |
| O   | IP39-1 BLOWER SPEED CONTROL 6: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                          |
| O   | IP39-2 BLOWER SPEED CONTROL 4: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                          |
| O   | IP39-3 BLOWER SPEED CONTROL 2: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                          |
| O   | IP39-4 BLOWER SPEED CONTROL 3: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                          |
| O   | IP39-6 BLOWER SPEED CONTROL 5: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                          |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 06.1

### COMPONENTS

| Component                                       | Connector(s)                  | Connector Description                                              | Location                                                                         |
|-------------------------------------------------|-------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------|
| AIR CONDITIONING BLOWER RELAY                   | —                             | —                                                                  | CENTRAL JUNCTION FUSE BOX R20                                                    |
| AIR CONDITIONING CONTROL MODULE (MANUAL, PANEL) | AC1<br>IP39<br>IP101<br>IP135 | 26-WAY / YELLOW<br>6-WAY / GREY<br>26-WAY / YELLOW<br>2-WAY / GREY | BEHIND CLIMATE CONTROL PANEL                                                     |
| AIR TEMPERATURE BLEND ACTUATOR                  | AC2                           | 6-WAY / BLACK                                                      | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| BLOWER (MANUAL)                                 | IP58                          | 2-WAY / GREY                                                       | BEHIND INSTRUMENT PANEL, RH SIDE / LHD, LH SIDE / RHD                            |
| BLOWER SERIES RESISTOR                          | IP121                         | 6-WAY / GREY                                                       | ADJACENT TO BLOWER MOTOR                                                         |
| CENTRAL JUNCTION FUSE BOX                       | CA75<br>CA76<br>CA77<br>CA78  | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY    | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE                                    |
|                                                 | IP1<br>IP2<br>IP3<br>IP4      | 14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY   |                                                                                  |
|                                                 | JB50<br>JB51<br>JB52          | 4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK                     |                                                                                  |
| DEFROST DOOR ACTUATOR                           | AC4                           | 6-WAY / BLACK                                                      | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| DISCHARGE TEMPERATURE SENSOR                    | AC6                           | 2-WAY / BLACK                                                      | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| DOOR MIRROR – LH                                | FL5                           | 22-WAY / BLACK                                                     | LH FRONT DOOR                                                                    |
| DOOR MIRROR – RH                                | FR4                           | 22-WAY / BLACK                                                     | RH FRONT DOOR                                                                    |
| EVAPORATOR TEMPERATURE SENSOR                   | AC5                           | 2-WAY / BLACK                                                      | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| FRESH / RECIRCULATION FLAP ACTUATOR             | AC7                           | 4-WAY / BLACK                                                      | LH SIDE OF AIR DISTRIBUTION UNIT (LHD)<br>RH SIDE OF AIR DISTRIBUTION UNIT (RHD) |
| HEATED REAR WINDOW                              | ZA1<br>ZA10                   | —<br>—                                                             | REAR WINDOW                                                                      |
| HEATED REAR WINDOW RELAY                        | —                             | —                                                                  | CENTRAL JUNCTION FUSE BOX R19                                                    |
| PANEL / FLOOR ACTUATOR                          | AC3                           | 6-WAY / BLACK                                                      | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| POWER DISTRIBUTION FUSE BOX                     | —                             | —                                                                  | ENGINE COMPARTMENT LH SIDE                                                       |
| WINDSHIELD HEATER – LH                          | JB95                          | 2-WAY / BLACK                                                      | WINDSHIELD                                                                       |
| WINDSHIELD HEATER – RH                          | JB96                          | 2-WAY / BLACK                                                      | WINDSHIELD                                                                       |
| WINDSHIELD HEATER RELAY                         | —                             | —                                                                  | POWER DISTRIBUTION FUSE BOX R2                                                   |

### HARNES IN-LINE CONNECTORS

| Connector | Connector Description                              | Location              |
|-----------|----------------------------------------------------|-----------------------|
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS     | DRIVER SIDE A POST    |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS     | DRIVER SIDE A POST    |
| CA127     | 2-WAY / GREY / CABIN HARNESS TO HEATED REAR WINDOW | BEHIND LH E POST TRIM |

### GROUND

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G3     | PASSENGER COMPARTMENT / LH E POST                            |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Air Conditioning Control Module: Automatic**

| Pin      | Description and Characteristic                                                                                       |
|----------|----------------------------------------------------------------------------------------------------------------------|
| O AC1-04 | FRESH / RECIRCULATION FLAP ACTUATOR DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO B+ OR TO GROUND                    |
| O AC1-05 | FRESH / RECIRCULATION FLAP ACTUATOR DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO B+ OR TO GROUND                    |
| O AC1-06 | DEFROST DOOR ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                            |
| O AC1-07 | DEFROST DOOR ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                            |
| O AC1-08 | PANEL / FLOOR ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                           |
| O AC1-09 | PANEL / FLOOR ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                           |
| O AC1-10 | AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 1 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                   |
| O AC1-11 | AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 2 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                   |
| O AC1-12 | AIR TEMPERATURE BLEND ACTUATOR POWER SUPPLY: B+                                                                      |
| O AC1-13 | DEFROST DOOR ACTUATOR POWER SUPPLY: B+                                                                               |
| I AC1-14 | EVAPORATOR TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES       |
| I AC1-15 | DISCHARGE TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES        |
| I AC1-16 | SENSOR GROUND: GROUND                                                                                                |
| O AC1-20 | DEFROST DOOR ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                            |
| O AC1-21 | DEFROST DOOR ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                            |
| O AC1-22 | PANEL / FLOOR ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                           |
| O AC1-23 | PANEL / FLOOR ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                           |
| O AC1-24 | AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 3 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                   |
| O AC1-25 | AIR TEMPERATURE BLEND ACTUATOR STEPPER COIL 4 DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                   |
| O AC1-26 | PANEL / FLOOR ACTUATOR POWER SUPPLY: B+                                                                              |
| B+       | IP101-01 BATTERY SAVER POWER SUPPLY: B+                                                                              |
| B+       | IP101-02 IGNITION SWITCHED POWER SUPPLY: B+                                                                          |
| O        | IP101-03 WINDSHIELD HEATER RELAY DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                                |
| O        | IP101-04 HEATED REAR WINDOW RELAY DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO GROUND                               |
| I        | IP101-05 ASPIRATOR MOTOR DRIVE: PERMANENTLY CONNECTED TO GROUND; A/CCM MONITORS CIRCUIT FOR MOTOR RUNNING CONDITION  |
| O        | IP101-06 BLOWER MOTOR CONTROL: PWM, 400 Hz, APPROXIMATELY 8% – 90%; HIGHER DUTY CYCLE = HIGHER BLOWER SPEED          |
| I        | IP101-07 BLOWER MOTOR SPEED SENSE: FREQUENCY = RPM / 20; FREQUENCY PROPORTIONAL TO BLOWER SPEED                      |
| C        | IP101-09 CAN +                                                                                                       |
| C        | IP101-10 CAN –                                                                                                       |
| B+       | IP101-14 BATTERY POWER SUPPLY: B+                                                                                    |
| PG       | IP101-15 POWER GROUND: GROUND                                                                                        |
| I        | IP101-16 IN CAR TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES  |
| SG       | IP101-17 SENSOR GROUND: GROUND                                                                                       |
| I        | IP101-18 SOLAR SENSOR SIGNAL, NOMINAL 0 – 5 V: DARKER = HIGHER VOLTAGE                                               |
| I        | IP101-19 AMBIENT TEMPERATURE SENSOR SIGNAL, NOMINAL 0 – 5 V: NTC SENSOR – VOLTAGE DECREASES AS TEMPERATURE INCREASES |
| I        | IP101-20 DIMMER CONTROLLED ILLUMINATION: PWM, 80Hz, GROUND = 0% DUTY CYCLE, B+ = 100% DUTY CYCLE                     |
| O        | IP101-21 AIR CONDITIONING BLOWER RELAY DRIVE: TO ACTIVATE, A/CCM SWITCHES CIRCUIT TO B+                              |
| C        | IP101-22 CAN +                                                                                                       |
| C        | IP101-23 CAN –                                                                                                       |

**NOTE: Refer to the Appendix at the rear of this book for Network Messages.**

**COMPONENTS**

| Component                                          | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                                                         |
|----------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| AIR CONDITIONING BLOWER RELAY                      | —                                                                                | —                                                                                                                                                                                     | CENTRAL JUNCTION FUSE BOX R20                                                    |
| AIR CONDITIONING CONTROL MODULE (AUTOMATIC, PANEL) | AC1<br>IP101                                                                     | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                                                                                                                    | BEHIND CLIMATE CONTROL PANEL                                                     |
| AIR CONDITIONING CONTROL MODULE (REMOTE)           | AC1<br>IP101                                                                     | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                                                                                                                    | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| AIR TEMPERATURE BLEND ACTUATOR                     | AC2                                                                              | 6-WAY / BLACK                                                                                                                                                                         | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| AMBIENT TEMPERATURE SENSOR                         | JB105                                                                            | 2-WAY / BLACK                                                                                                                                                                         | FRONT CROSS MEMBER, ADJACENT TO RADIATOR LH SIDE                                 |
| BLOWER (AUTOMATIC)                                 | IP134                                                                            | 6-WAY / BLACK                                                                                                                                                                         | BEHIND INSTRUMENT PANEL RH SIDE                                                  |
| CENTRAL JUNCTION FUSE BOX                          | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE                                    |
| DEFROST DOOR ACTUATOR                              | AC4                                                                              | 6-WAY / BLACK                                                                                                                                                                         | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| DISCHARGE TEMPERATURE SENSOR                       | AC6                                                                              | 2-WAY / BLACK                                                                                                                                                                         | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| DOOR MIRROR – LH                                   | FL5                                                                              | 22-WAY / BLACK                                                                                                                                                                        | LH FRONT DOOR                                                                    |
| DOOR MIRROR – RH                                   | FR4                                                                              | 22-WAY / BLACK                                                                                                                                                                        | RH FRONT DOOR                                                                    |
| EVAPORATOR TEMPERATURE SENSOR                      | AC5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| FRESH / RECIRCULATION FLAP ACTUATOR                | AC7                                                                              | 4-WAY / BLACK                                                                                                                                                                         | LH SIDE OF AIR DISTRIBUTION UNIT (LHD)<br>RH SIDE OF AIR DISTRIBUTION UNIT (RHD) |
| HEATED REAR WINDOW                                 | ZA1<br>ZA10                                                                      | —<br>—                                                                                                                                                                                | REAR WINDOW                                                                      |
| HEATED REAR WINDOW RELAY                           | —                                                                                | —                                                                                                                                                                                     | CENTRAL JUNCTION FUSE BOX R19                                                    |
| IN-CAR TEMPERATURE SENSOR                          | IP66                                                                             | 4-WAY / BLACK                                                                                                                                                                         | BELOW INSTRUMENT PANEL CENTER RIGHT                                              |
| PANEL / FLOOR ACTUATOR                             | AC3                                                                              | 6-WAY / BLACK                                                                                                                                                                         | RH SIDE OF AIR DISTRIBUTION UNIT                                                 |
| POWER DISTRIBUTION FUSE BOX                        | —                                                                                | —                                                                                                                                                                                     | ENGINE COMPARTMENT LH SIDE                                                       |
| SOLAR SENSOR                                       | IP38                                                                             | 2-WAY / BLACK                                                                                                                                                                         | TOP CENTER OF INSTRUMENT PANEL                                                   |
| WINDSHIELD HEATER – LH                             | JB95                                                                             | 2-WAY / BLACK                                                                                                                                                                         | WINDSHIELD                                                                       |
| WINDSHIELD HEATER – RH                             | JB96                                                                             | 2-WAY / BLACK                                                                                                                                                                         | WINDSHIELD                                                                       |
| WINDSHIELD HEATER RELAY                            | —                                                                                | —                                                                                                                                                                                     | POWER DISTRIBUTION FUSE BOX R2                                                   |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                    | DRIVER SIDE A POST                    |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                    | DRIVER SIDE A POST                    |
| CA127     | 2-WAY / GREY / CABIN HARNESS TO HEATED REAR WINDOW                | BEHIND LH E POST TRIM                 |
| JB3       | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE        |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUND**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G3     | PASSENGER COMPARTMENT / LH E POST                            |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin      | Description and Characteristic                                                        |
|----------|---------------------------------------------------------------------------------------|
| S IP5-18 | SCP -                                                                                 |
| S IP5-19 | SCP +                                                                                 |
| I IP6-18 | SEAT BELT AND AIRBAG AUDIBLE WARNING REQUEST: AUDIBLE WARNING REQUEST ACTIVE = GROUND |

### Instrument Cluster

| Pin        | Description and Characteristic                                                                                                                  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| I IP10-7   | FUEL LEVEL SENSOR 1 SIGNAL: VARIABLE RESISTANCE: 20 Ω = EMPTY; 160 Ω = FULL                                                                     |
| I IP10-8   | FUEL LEVEL SENSOR 2 SIGNAL: VARIABLE RESISTANCE: 20 Ω = EMPTY; 160 Ω = FULL                                                                     |
| SG IP10-9  | FUEL LEVEL SENSOR REFERENCE: GROUND                                                                                                             |
| I IP10-10  | MAIN BEAM STATUS: B+ WHEN ACTIVATED                                                                                                             |
| I IP10-11  | WASHER FLUID LEVEL LOW SIGNAL: FLUID LEVEL LOW = GROUND                                                                                         |
| I IP10-12  | BRAKE FLUID LEVEL WARNING SIGNAL: FLUID LEVEL LOW = GROUND                                                                                      |
| I IP10-15  | PARKING BRAKE SIGNAL: PARKING BRAKE ON = GROUND                                                                                                 |
| I IP10-16  | TRIP COMPUTER CYCLE SWITCH: GROUND WHEN ACTIVATED                                                                                               |
| C IP10-17  | CAN +                                                                                                                                           |
| C IP10-18  | CAN -                                                                                                                                           |
| I IP10-19  | FRONT FOG STATUS (HARD WIRED TO INDICATOR): B+ WHEN ACTIVATED                                                                                   |
| I IP10-20  | REAR FOG STATUS (HARD WIRED TO INDICATOR): B+ WHEN ACTIVATED                                                                                    |
| S IP10-22  | SCP +                                                                                                                                           |
| S IP10-23  | SCP -                                                                                                                                           |
| I IP10-24  | TRIP COMPUTER MODE SIGNAL: STEPPED RESISTANCE                                                                                                   |
| SG IP10-25 | TRIP COMPUTER SWITCH PACK REFERENCE: GROUND                                                                                                     |
| I IP11-5   | ENGINE OIL PRESSURE SIGNAL: ENGINE OIL PRESSURE PRESENT = GROUND                                                                                |
| I IP11-7   | BATTERY POWER SUPPLY: B+                                                                                                                        |
| I IP11-8   | POWER GROUND: GROUND                                                                                                                            |
| I IP11-11  | IGNITION SWITCHED POWER SUPPLY (II): B+                                                                                                         |
| I IP11-13  | IGNITION SWITCHED POWER SUPPLY (I): B+                                                                                                          |
| I IP11-15  | SIDE LAMPS STATUS: B+ WHEN ACTIVATED                                                                                                            |
| I IP11-17  | DIP BEAM STATUS: B+ WHEN ACTIVATED                                                                                                              |
| I IP11-19  | AIR BAG WARNING: HARD WIRED TO AIR BAG INDICATOR                                                                                                |
| I IP11-21  | DIMMER CONTROLLED ILLUMINATION: PWM, 80 Hz, GROUND = 0% DUTY CYCLE, B+ = 100% DUTY CYCLE; HARD WIRED TO BACK LIGHTING; MICRO SENSED FOR DISPLAY |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

## Fig. 07.1

### COMPONENTS

| Component                         | Connector(s) | Connector Description | Location                        |
|-----------------------------------|--------------|-----------------------|---------------------------------|
| BRAKE FLUID SWITCH                | JB70         | 3-WAY / BLACK         | BRAKE MASTER CYLINDER           |
| FUEL LEVEL SENSOR 1 (2.5L & 3.0L) | FT2          | 4-WAY / BLACK         | FUEL TANK                       |
| FUEL LEVEL SENSOR 2 (2.5L & 3.0L) | FT3          | 4-WAY / BLACK         | FUEL TANK                       |
| FUEL LEVEL SENSOR (2.0L)          | CA415        | 4-WAY / BLACK         | FUEL TANK                       |
| GENERAL ELECTRONIC CONTROL MODULE | CA86         | 23-WAY / GREY         | BEHIND INSTRUMENT PANEL RH SIDE |
|                                   | CA87         | 23-WAY / GREEN        |                                 |
|                                   | IP5          | 23-WAY / BROWN        |                                 |
|                                   | IP6          | 23-WAY / WHITE        |                                 |
|                                   | JB172        | 23-WAY / BLUE         |                                 |
| INSTRUMENT CLUSTER                | IP10         | 26-WAY / YELLOW       | INSTRUMENT PANEL                |
|                                   | IP11         | 26-WAY / YELLOW       |                                 |
| MASTER LIGHTING SWITCH            | IP17         | 16-WAY / BLACK        | INSTRUMENT PANEL                |
| OIL PRESSURE SWITCH               | EN19         | 1-WAY / BLACK         | ADJACENT TO ENGINE OIL FILTER   |
| RESTRAINTS CONTROL MODULE         | CA165        | 40-WAY / BLACK        | UNDER CENTER CONSOLE            |
|                                   | IP74         | 24-WAY / BLACK        |                                 |
| TURN SIGNAL SWITCH                | IP53         | 10-WAY / GREY         | STEERING COLUMN                 |
| WASHER FLUID LEVEL SWITCH         | JB103        | 2-WAY / BLACK         | ENGINE COMPARTMENT RH FRONT     |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS     | LH LOWER A POST                  |
| CA5       | 12-WAY / BLACK / CABIN HARNESS TO FUEL TANK LINK LEAD            | TOP OF FUEL TANK                 |
| CA169     | 4-WAY / GREY / CABIN HARNESS TO INSTRUMENT PANEL HARNESS         | BELOW THE GLOVEBOX               |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |

### GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

**Fig. 07.2**

General Electronic Control Module

| Pin | Description and Characteristic                                                               |
|-----|----------------------------------------------------------------------------------------------|
| PG  | CA86-5 POWER GROUND: GROUND                                                                  |
| S   | IP5-18 SCP -                                                                                 |
| S   | IP5-19 SCP +                                                                                 |
| SG  | IP6-1 LOGIC GROUND: GROUND                                                                   |
| I   | IP6-8 KEY-IN IGNITION SWITCH: B+ WHEN KEY IN                                                 |
| I   | IP6-15 NOT-IN-PARK SWITCH: PARK = OPEN CIRCUIT; NOT-IN-PARK = GROUND                         |
| I   | IP6-18 SEAT BELT AND AIRBAG AUDIBLE WARNING REQUEST: AUDIBLE WARNING REQUEST ACTIVE = GROUND |
| I   | IP6-22 DRIVER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                      |
| B+  | JB172-5 BATTERY POWER SUPPLY (TURN SIGNALS): B+                                              |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

COMPONENTS

| Component                         | Connector(s)                        | Connector Description                                                                | Location                        |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR LATCH ASSEMBLY - LH FRONT    | FL3<br>FL9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - RH FRONT    | FR3<br>FR9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH FRONT DOOR                   |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| IGNITION SWITCH                   | IP18                                | 7-WAY / BLACK                                                                        | STEERING COLUMN                 |
| INSTRUMENT CLUSTER                | IP10<br>IP11                        | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                   | INSTRUMENT PANEL                |
| J GATE ASSEMBLY                   | IP14                                | 16-WAY / GREEN                                                                       | CENTER CONSOLE                  |
| RESTRAINTS CONTROL MODULE         | CA165<br>IP74                       | 40-WAY / BLACK<br>24-WAY / BLACK                                                     | UNDER CENTER CONSOLE            |

HARNES IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location           |
|-----------|--------------------------------------------------------------|--------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST    |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST |

GROUND S

| Ground | Location                                  |
|--------|-------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

**Fig. 08.1**

General Electronic Control Module

| Pin | Description and Characteristic                                                     |
|-----|------------------------------------------------------------------------------------|
| PG  | CA86-5 POWER GROUND: GROUND                                                        |
| I   | IP5-3 EXTERNAL ANTENNA                                                             |
| S   | IP5-18 SCP -                                                                       |
| S   | IP5-19 SCP +                                                                       |
| O   | IP5-22 TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+       |
| SG  | IP6-1 LOGIC GROUND: GROUND                                                         |
| I   | IP6-11 MAIN BEAM SWITCH: GROUND WHEN SELECTED                                      |
| O   | IP6-13 MAIN BEAM / FRONT FOG RELAY DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| I   | IP6-17 LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                                 |
| I   | IP6-19 RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                                 |
| I   | IP6-23 HAZARD SWITCH: GROUND WHEN SELECTED                                         |
| O   | JB172-3 RH FRONT TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+             |
| O   | JB172-4 LH FRONT TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+             |
| B+  | JB172-5 BATTERY POWER SUPPLY (TURN SIGNALS): B+                                    |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

COMPONENTS

| Component                         | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                      |
|-----------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| AUTOLAMPS SENSOR                  | RC5                                                                              | 5-WAY / BLACK                                                                                                                                                                         | BEHIND REAR VIEW MIRROR                       |
| CENTRAL JUNCTION FUSE BOX         | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| DIP BEAM RELAY                    | —                                                                                | —                                                                                                                                                                                     | POWER DISTRIBUTION FUSE BOX R9                |
| FOG LAMP - LH FRONT               | FB1                                                                              | 2-WAY / BLACK                                                                                                                                                                         | UNDER FRONT BUMPER                            |
| FOG LAMP - RH FRONT               | FB3                                                                              | 2-WAY / BLACK                                                                                                                                                                         | UNDER FRONT BUMPER                            |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172                                              | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE                                                                                                  | BEHIND INSTRUMENT PANEL RH SIDE               |
| GLOVE BOX LAMP                    | IP25                                                                             | 2-WAY / BROWN                                                                                                                                                                         | GLOVE BOX                                     |
| HEADLAMP UNIT - LH                | JB84                                                                             | 10-WAY / BLACK                                                                                                                                                                        | LH FRONT OF VEHICLE                           |
| HEADLAMP UNIT - RH                | JB85                                                                             | 10-WAY / BLACK                                                                                                                                                                        | RH FRONT OF VEHICLE                           |
| MAIN BEAM / FRONT FOG RELAY       | —                                                                                | —                                                                                                                                                                                     | CENTRAL JUNCTION FUSE BOX R15                 |
| MASTER LIGHTING SWITCH            | IP17                                                                             | 16-WAY / BLACK                                                                                                                                                                        | INSTRUMENT PANEL                              |
| POWER DISTRIBUTION FUSE BOX       | —                                                                                | —                                                                                                                                                                                     | ENGINE COMPARTMENT LH SIDE                    |
| SIDE MARKER LAMP - LH FRONT       | FB2                                                                              | 2-WAY / BLACK                                                                                                                                                                         | FRONT BUMPER LH SIDE                          |
| SIDE MARKER LAMP - RH FRONT       | FB4                                                                              | 2-WAY / BLACK                                                                                                                                                                         | FRONT BUMPER RH SIDE                          |
| TURN REPEATER - LH                | JB132                                                                            | 2-WAY / BLACK                                                                                                                                                                         | LH FRONT FENDER                               |
| TURN REPEATER - RH                | JB98                                                                             | 2-WAY / BLACK                                                                                                                                                                         | RH FRONT FENDER                               |
| TURN SIGNAL SWITCH                | IP53                                                                             | 10-WAY / GREY                                                                                                                                                                         | STEERING COLUMN                               |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS     | LH LOWER A POST                  |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                   | LH LOWER A POST                  |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |
| JB171     | 8-WAY / BLACK / FRONT END HARNESS TO BUMPER LINK LEAD            | BEHIND FRONT LH WHEEL ARCH LINER |

GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G32    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY              |
| G33    | ENGINE COMPARTMENT / BEHIND RH HEADLAMP ASSEMBLY             |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 08.2**

**General Electronic Control Module**

| P  | Pin     | Description and Characteristic                                              |
|----|---------|-----------------------------------------------------------------------------|
| PG | CA86-5  | POWER GROUND: GROUND                                                        |
| I  | IP5-3   | EXTERNAL ANTENNA                                                            |
| S  | IP5-18  | SCP -                                                                       |
| S  | IP5-19  | SCP +                                                                       |
| O  | IP5-22  | TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+       |
| SG | IP6-1   | LOGIC GROUND: GROUND                                                        |
| I  | IP6-11  | MAIN BEAM SWITCH: GROUND WHEN SELECTED                                      |
| O  | IP6-13  | MAIN BEAM / FRONT FOG RELAY DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| I  | IP6-17  | LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                                 |
| I  | IP6-19  | RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                                 |
| I  | IP6-23  | HAZARD SWITCH: GROUND WHEN SELECTED                                         |
| O  | JB172-3 | RH FRONT TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+              |
| O  | JB172-4 | LH FRONT TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+              |
| B+ | JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                                     |

**COMPONENTS**

| Component                         | Connector(s)                        | Connector Description                                                                | Location                                      |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------|
| CENTRAL JUNCTION FUSE BOX         | CA75<br>CA76<br>CA77<br>CA78        | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY                      | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
|                                   | IP1<br>IP2<br>IP3<br>IP4            | 14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY                     |                                               |
|                                   | JB50<br>JB51<br>JB52                | 4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK                                       |                                               |
| DIP BEAM RELAY                    | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R9                |
| FOG LAMP - LH FRONT               | FB1                                 | 2-WAY / BLACK                                                                        | UNDER FRONT BUMPER                            |
| FOG LAMP - RH FRONT               | FB3                                 | 2-WAY / BLACK                                                                        | UNDER FRONT BUMPER                            |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE               |
| GLOVE BOX LAMP                    | IP25                                | 2-WAY / BROWN                                                                        | GLOVE BOX                                     |
| HAZARD SWITCH                     | IP51                                | 6-WAY / BLACK                                                                        | CENTER CONSOLE                                |
| HEADLAMP UNIT - LH                | JB84                                | 10-WAY / BLACK                                                                       | LH FRONT OF VEHICLE                           |
| HEADLAMP UNIT - RH                | JB85                                | 10-WAY / BLACK                                                                       | RH FRONT OF VEHICLE                           |
| MAIN BEAM / FRONT FOG RELAY       | —                                   | —                                                                                    | CENTRAL JUNCTION FUSE BOX R15                 |
| MASTER LIGHTING SWITCH            | IP17                                | 16-WAY / BLACK                                                                       | INSTRUMENT PANEL                              |
| POWER DISTRIBUTION FUSE BOX       | —                                   | —                                                                                    | ENGINE COMPARTMENT LH SIDE                    |
| SIDE MARKER LAMP - LH FRONT       | FB2                                 | 2-WAY / BLACK                                                                        | FRONT BUMPER LH SIDE                          |
| SIDE MARKER LAMP - RH FRONT       | FB4                                 | 2-WAY / BLACK                                                                        | FRONT BUMPER RH SIDE                          |
| TURN REPEATER - LH                | JB132                               | 2-WAY / BLACK                                                                        | LH FRONT FENDER                               |
| TURN REPEATER - RH                | JB98                                | 2-WAY / BLACK                                                                        | RH FRONT FENDER                               |
| TURN SIGNAL SWITCH                | IP53                                | 10-WAY / GREY                                                                        | STEERING COLUMN                               |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |
| JB171     | 8-WAY / BLACK / FRONT END HARNESS TO BUMPER LINK LEAD            | BEHIND FRONT LH WHEEL ARCH LINER |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G32    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY              |
| G33    | ENGINE COMPARTMENT / BEHIND RH HEADLAMP ASSEMBLY             |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

**Fig. 08.3**

### General Electronic Control Module

| Pin        | Description and Characteristic                                        |
|------------|-----------------------------------------------------------------------|
| O CA86-2   | LH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| PG CA86-5  | POWER GROUND: GROUND                                                  |
| O CA87-4   | RH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| S IP5-18   | SCP -                                                                 |
| S IP5-19   | SCP +                                                                 |
| O IP5-22   | TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| SG IP6-1   | LOGIC GROUND: GROUND                                                  |
| I IP6-17   | LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-19   | RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-23   | HAZARD SWITCH: GROUND WHEN SELECTED                                   |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                               |

### Instrument Cluster

| Pin       | Description and Characteristic                                        |
|-----------|-----------------------------------------------------------------------|
| I IP10-1  | REVERSE LAMP SWITCH: B+ WHEN ACTIVATED                                |
| C IP10-17 | CAN +                                                                 |
| C IP10-18 | CAN -                                                                 |
| O IP11-3  | REVERSE LAMPS RELAY DRIVE: TO ACTIVATE, IC SWITCHES CIRCUIT TO GROUND |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

### COMPONENTS

| Component                         | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                      |
|-----------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH             | PA3                                                                              | 3-WAY / BLACK                                                                                                                                                                         | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX         | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172                                              | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE                                                                                                  | BEHIND INSTRUMENT PANEL RH SIDE               |
| HAZARD SWITCH                     | IP51                                                                             | 6-WAY / BLACK                                                                                                                                                                         | CENTER CONSOLE                                |
| HIGH MOUNT STOP LAMP              | CA304                                                                            | 2-WAY / BLACK                                                                                                                                                                         | REAR WINDOW                                   |
| INSTRUMENT CLUSTER                | IP10<br>IP11                                                                     | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                                                                                                                    | INSTRUMENT PANEL                              |
| LICENSE PLATE LAMP - LH           | TM4                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| LICENSE PLATE LAMP - RH           | TM5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| MASTER LIGHTING SWITCH            | IP17                                                                             | 16-WAY / BLACK                                                                                                                                                                        | INSTRUMENT PANEL                              |
| REVERSE LAMPS RELAY               | —                                                                                | —                                                                                                                                                                                     | CENTRAL JUNCTION FUSE BOX R17                 |
| REVERSE LAMPS SWITCH              | EN85                                                                             | 2-WAY / BLACK                                                                                                                                                                         | TOP OF TRANSMISSION                           |
| SIDE MARKER LAMP - LH REAR        | RB5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | REAR BUMPER LH SIDE                           |
| SIDE MARKER LAMP - RH REAR        | RB6                                                                              | 2-WAY / BLACK                                                                                                                                                                         | REAR BUMPER RH SIDE                           |
| TAIL LAMP UNIT - LH               | CA137                                                                            | 7-WAY / BLACK                                                                                                                                                                         | TRUNK LH REAR                                 |
| TAIL LAMP UNIT - RH               | CA138                                                                            | 7-WAY / BLACK                                                                                                                                                                         | TRUNK RH REAR                                 |
| TURN SIGNAL SWITCH                | IP53                                                                             | 10-WAY / GREY                                                                                                                                                                         | STEERING COLUMN                               |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS              | BELOW THE GLOVEBOX                    |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR                         |
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS         | SPARE WHEEL WELL                      |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                           | LH LOWER A POST                       |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS        | ADJACENT TO FOOT PEDALS               |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE            |

### GROUND

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G2     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G38    | PASSENGER COMPARTMENT / TOP OF LH E POST  |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**CONTROL MODULE PIN-OUT INFORMATION**

**Fig. 08.4**

**General Electronic Control Module**

| Pin        | Description and Characteristic                                        |
|------------|-----------------------------------------------------------------------|
| O CA86-2   | LH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| PG CA86-5  | POWER GROUND: GROUND                                                  |
| O CA87-4   | RH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| S IP5-18   | SCP -                                                                 |
| S IP5-19   | SCP +                                                                 |
| O IP5-22   | TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| SG IP6-1   | LOGIC GROUND: GROUND                                                  |
| I IP6-17   | LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-19   | RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-23   | HAZARD SWITCH: GROUND WHEN SELECTED                                   |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                               |

**NOTE: Refer to the Appendix at the rear of this book for Network Messages.**

**COMPONENTS**

| Component                               | Connector(s)                                                | Connector Description                                                                                                                  | Location                                      |
|-----------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH                   | PA3                                                         | 3-WAY / BLACK                                                                                                                          | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX               | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4    | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY    | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE       | JB50<br>JB51<br>JB52<br>CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK<br>23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE               |
| HAZARD SWITCH                           | IP51                                                        | 6-WAY / BLACK                                                                                                                          | CENTER CONSOLE                                |
| HIGH MOUNT STOP LAMP                    | CA304                                                       | 2-WAY / BLACK                                                                                                                          | REAR WINDOW                                   |
| LICENSE PLATE LAMP - LH                 | TM4                                                         | 2-WAY / BLACK                                                                                                                          | TRUNK LID                                     |
| LICENSE PLATE LAMP - RH                 | TM5                                                         | 2-WAY / BLACK                                                                                                                          | TRUNK LID                                     |
| MASTER LIGHTING SWITCH                  | IP17                                                        | 16-WAY / BLACK                                                                                                                         | INSTRUMENT PANEL                              |
| TAIL LAMP UNIT - LH                     | TT4                                                         | 7-WAY / BLACK                                                                                                                          | TRUNK LH REAR                                 |
| TAIL LAMP UNIT - RH                     | TT5                                                         | 7-WAY / BLACK                                                                                                                          | TRUNK RH REAR                                 |
| TRAILER CONNECTOR                       | T5011<br>T312N<br>T6US1                                     | -<br>-<br>-                                                                                                                            | TRUNK RH REAR                                 |
| TRAILER TOWING CONTROL MODULE           | TT1<br>TT2<br>TT3                                           | -<br>-<br>-                                                                                                                            | SPARE WHEEL WELL                              |
| TRAILER TOWING REAR ACCESSORY CONNECTOR | T3001<br>T4001<br>T5001                                     | -<br>-<br>-                                                                                                                            | TRUNK RH REAR                                 |
| TURN SIGNAL SWITCH                      | IP53                                                        | 10-WAY / GREY                                                                                                                          | STEERING COLUMN                               |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                                  | Location                              |
|-----------|--------------------------------------------------------|---------------------------------------|
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS      | TRUNK LH REAR                         |
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS   | SPARE WHEEL WELL                      |
| CA146     | 3-WAY / BLACK / ACCESSORY SOCKET                       | ADJACENT TO LH REAR TAIL LAMP         |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                     | LH LOWER A POST                       |
| CA175     | TRAILER TOWING CONNECTOR                               | TRUNK                                 |
| CA176     | TRAILER TOWING CONNECTOR                               | TRUNK                                 |
| CA302     | 2-WAY / GREY / CABIN HARNESS TO TRAILER HARNESS        | ADJACENT TO LH REAR TAIL LAMP         |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS  | ADJACENT TO FOOT PEDALS               |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                       | BELOW PARCEL SHELF LH SIDE            |
| TT6       | TRAILER TOWING CONNECTOR                               | TRUNK                                 |

**GROUNDS**

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G2     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G38    | PASSENGER COMPARTMENT / TOP OF LH E POST  |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

Fig. 08.5

General Electronic Control Module

| Pin        | Description and Characteristic                                        |
|------------|-----------------------------------------------------------------------|
| O CA86-2   | LH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| PG CA86-5  | POWER GROUND: GROUND                                                  |
| O CA87-4   | RH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| S IP5-18   | SCP -                                                                 |
| S IP5-19   | SCP +                                                                 |
| O IP5-22   | TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| SG IP6-1   | LOGIC GROUND: GROUND                                                  |
| I IP6-17   | LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-19   | RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-23   | HAZARD SWITCH: GROUND WHEN SELECTED                                   |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                               |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

COMPONENTS

| Component                               | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                      |
|-----------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH                   | PA3                                                                              | 3-WAY / BLACK                                                                                                                                                                         | TOP OF BRAKE PEDAL                            |
| CARAVAN CONNECTOR                       | T412S                                                                            | —                                                                                                                                                                                     | TRUNK RH REAR                                 |
| CENTRAL JUNCTION FUSE BOX               | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE       | CA86<br>CA87<br>IP5<br>IP6<br>JB172                                              | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE                                                                                                  | BEHIND INSTRUMENT PANEL RH SIDE               |
| HAZARD SWITCH                           | IP51                                                                             | 6-WAY / BLACK                                                                                                                                                                         | CENTER CONSOLE                                |
| HIGH MOUNT STOP LAMP                    | CA304                                                                            | 2-WAY / BLACK                                                                                                                                                                         | REAR WINDOW                                   |
| LICENSE PLATE LAMP - LH                 | TM4                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| LICENSE PLATE LAMP - RH                 | TM5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| MASTER LIGHTING SWITCH                  | IP17                                                                             | 16-WAY / BLACK                                                                                                                                                                        | INSTRUMENT PANEL                              |
| TAIL LAMP UNIT - LH                     | TT4                                                                              | 7-WAY / BLACK                                                                                                                                                                         | TRUNK LH REAR                                 |
| TAIL LAMP UNIT - RH                     | TT5                                                                              | 7-WAY / BLACK                                                                                                                                                                         | TRUNK RH REAR                                 |
| TRAILER CONNECTOR                       | T5011<br>T312N<br>T6US1                                                          | —<br>—<br>—                                                                                                                                                                           | TRUNK RH REAR                                 |
| TRAILER TOWING CONTROL MODULE           | TT1<br>TT2<br>TT3                                                                | —<br>—<br>—                                                                                                                                                                           | SPARE WHEEL WELL                              |
| TRAILER TOWING REAR ACCESSORY CONNECTOR | T3001<br>T4001<br>T5001                                                          | —<br>—<br>—                                                                                                                                                                           | TRUNK RH REAR                                 |
| TURN SIGNAL SWITCH                      | IP53                                                                             | 10-WAY / GREY                                                                                                                                                                         | STEERING COLUMN                               |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR                         |
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS         | SPARE WHEEL WELL                      |
| CA146     | 3-WAY / BLACK / ACCESSORY SOCKET                             | ADJACENT TO LH REAR TAIL LAMP         |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                           | LH LOWER A POST                       |
| CA175     | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| CA176     | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| CA302     | 2-WAY / GREY / CABIN HARNESS TO TRAILER HARNESS              | ADJACENT TO LH REAR TAIL LAMP         |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB196     | 10-WAY / GREY / JUNCTION BOX HARNESS TO CABIN HARNESS        | ADJACENT TO FOOT PEDALS               |
| T3001     | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE            |
| TT6       | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| TT7       | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |

GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G2     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G38    | PASSENGER COMPARTMENT / TOP OF LH E POST  |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**CONTROL MODULE PIN-OUT INFORMATION**

**Fig. 08.6**

**General Electronic Control Module**

| Pin        | Description and Characteristic                                        |
|------------|-----------------------------------------------------------------------|
| O CA86-2   | LH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| PG CA86-5  | POWER GROUND: GROUND                                                  |
| O CA87-4   | RH REAR TURN SIGNAL: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| S IP5-18   | SCP -                                                                 |
| S IP5-19   | SCP +                                                                 |
| O IP5-22   | TURN SIGNAL AUDIBLE WARNING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| SG IP6-1   | LOGIC GROUND: GROUND                                                  |
| I IP6-17   | LH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-19   | RH TURN SIGNAL SWITCH: GROUND WHEN SELECTED                           |
| I IP6-23   | HAZARD SWITCH: GROUND WHEN SELECTED                                   |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                               |

**NOTE: Refer to the Appendix at the rear of this book for Network Messages.**

**COMPONENTS**

| Component                               | Connector(s)                                                                     | Connector Description                                                                                                                                                                 | Location                                      |
|-----------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| BRAKE ON / OFF SWITCH                   | PA3                                                                              | 3-WAY / BLACK                                                                                                                                                                         | TOP OF BRAKE PEDAL                            |
| CENTRAL JUNCTION FUSE BOX               | CA75<br>CA76<br>CA77<br>CA78<br>IP1<br>IP2<br>IP3<br>IP4<br>JB50<br>JB51<br>JB52 | 8-WAY / GREY<br>16-WAY / GREEN<br>2-WAY / GREY<br>16-WAY / GREY<br>14-WAY / GREEN<br>16-WAY / GREY<br>2-WAY / GREY<br>14-WAY / GREY<br>4-WAY / GREY<br>16-WAY / BLUE<br>2-WAY / BLACK | PASSENGER COMPARTMENT, FRONT BULKHEAD LH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE       | CA86<br>CA87<br>IP5<br>IP6<br>JB172                                              | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE                                                                                                  | BEHIND INSTRUMENT PANEL RH SIDE               |
| HAZARD SWITCH                           | IP51                                                                             | 6-WAY / BLACK                                                                                                                                                                         | CENTER CONSOLE                                |
| HIGH MOUNT STOP LAMP                    | CA304                                                                            | 2-WAY / BLACK                                                                                                                                                                         | REAR WINDOW                                   |
| LICENSE PLATE LAMP - LH                 | TM4                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| LICENSE PLATE LAMP - RH                 | TM5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | TRUNK LID                                     |
| MASTER LIGHTING SWITCH                  | IP17                                                                             | 16-WAY / BLACK                                                                                                                                                                        | INSTRUMENT PANEL                              |
| SIDE MARKER LAMP - LH REAR              | RB5                                                                              | 2-WAY / BLACK                                                                                                                                                                         | REAR BUMPER LH SIDE                           |
| SIDE MARKER LAMP - RH REAR              | RB6                                                                              | 2-WAY / BLACK                                                                                                                                                                         | REAR BUMPER RH SIDE                           |
| TAIL LAMP UNIT - LH                     | TT4                                                                              | 7-WAY / BLACK                                                                                                                                                                         | TRUNK LH REAR                                 |
| TAIL LAMP UNIT - RH                     | TT5                                                                              | 7-WAY / BLACK                                                                                                                                                                         | TRUNK RH REAR                                 |
| TRAILER CONNECTOR                       | T5011<br>T312N<br>T6US1                                                          | -<br>-<br>-                                                                                                                                                                           | TRUNK RH REAR                                 |
| TRAILER TOWING CONTROL MODULE           | TT1<br>TT2<br>TT3                                                                | -<br>-<br>-                                                                                                                                                                           | SPARE WHEEL WELL                              |
| TRAILER TOWING REAR ACCESSORY CONNECTOR | T3001<br>T4001<br>T5001                                                          | -<br>-<br>-                                                                                                                                                                           | TRUNK RH REAR                                 |
| TURN SIGNAL SWITCH                      | IP53                                                                             | 10-WAY / GREY                                                                                                                                                                         | STEERING COLUMN                               |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR                         |
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS         | SPARE WHEEL WELL                      |
| CA146     | 3-WAY / BLACK / ACCESSORY SOCKET                             | ADJACENT TO LH REAR TAIL LAMP         |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                           | LH LOWER A POST                       |
| CA175     | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| CA176     | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |
| CA302     | 2-WAY / GREY / CABIN HARNESS TO TRAILER HARNESS              | ADJACENT TO LH REAR TAIL LAMP         |
| JB2       | 16-WAY / GREEN / JUNCTION BOX HARNESS TO CABIN HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE            |
| TT6       | TRAILER TOWING CONNECTOR                                     | TRUNK                                 |

**GROUNDS**

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G2     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G38    | PASSENGER COMPARTMENT / TOP OF LH E POST  |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.**

**NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.**

**Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.**



**Fig. 08.7****COMPONENTS**

| Component                        | Connector(s) | Connector Description | Location                        |
|----------------------------------|--------------|-----------------------|---------------------------------|
| DIP BEAM RELAY                   | —            | —                     | POWER DISTRIBUTION FUSE BOX R9  |
| FRONT AXLE SENSOR                | JB140        | 6-WAY / BLACK         | LH FRONT SUSPENSION             |
| HEADLAMP LEVELING CONTROL MODULE | IP130        | 26-WAY / YELLOW       | BEHIND INSTRUMENT PANEL LH SIDE |
| HEADLAMP UNIT – LH               | JB84         | 10-WAY / BLACK        | LH FRONT OF VEHICLE             |
| HEADLAMP UNIT – RH               | JB85         | 10-WAY / BLACK        | RH FRONT OF VEHICLE             |
| MASTER LIGHTING SWITCH           | IP17         | 16-WAY / BLACK        | INSTRUMENT PANEL                |
| POWER DISTRIBUTION FUSE BOX      | —            | —                     | ENGINE COMPARTMENT LH SIDE      |
| REAR AXLE SENSOR                 | HI1          | 6-WAY / BLACK         | LH REAR SUSPENSION              |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS      | LH LOWER A POST                       |
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                   | BELOW THE GLOVEBOX                    |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS        | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA302     | 2-WAY / GREY / CABIN HARNESS TO TRAILER HARNESS                   | ADJACENT TO LH REAR TAIL LAMP         |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUND**

| Ground | Location                                        |
|--------|-------------------------------------------------|
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM       |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM       |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin        | Description and Characteristic                                               |
|------------|------------------------------------------------------------------------------|
| O CA86-1   | LH AND RH DOOR COURTESY LAMPS : TO ACTIVATE, GECM SWITCHES CIRCUIT TO GROUND |
| O CA86-3   | INTERIOR LAMPS : TO ACTIVATE, GECM SWITCHES CIRCUIT TO GROUND                |
| PG CA86-5  | POWER GROUND: GROUND                                                         |
| I CA86-14  | RESET SWITCH: OPEN CIRCUIT / GROUND                                          |
| I CA86-16  | SET SWITCH: OPEN CIRCUIT / GROUND                                            |
| I CA86-18  | RH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND            |
| I CA87-15  | LH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND            |
| I IP5-3    | EXTERNAL ANTENNA                                                             |
| S IP5-18   | SCP -                                                                        |
| S IP5-19   | SCP +                                                                        |
| SG IP6-1   | LOGIC GROUND: GROUND                                                         |
| I IP6-21   | PASSENGER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND          |
| I IP6-22   | DRIVER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND             |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                                           |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

## Fig. 09.1

### COMPONENTS

| Component                         | Connector(s)                         | Connector Description                                                                | Location                        |
|-----------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR COURTESY LAMP - LH           | FL7                                  | 2-WAY / WHITE                                                                        | LH FRONT DOOR                   |
| DOOR COURTESY LAMP - RH           | FR6                                  | 2-WAY / WHITE                                                                        | RH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - LH FRONT    | FL3<br>FL9                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - LH REAR     | BL3<br>BL6                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH REAR DOOR                    |
| DOOR LATCH ASSEMBLY - RH FRONT    | FR3<br>FR9                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - RH REAR     | BR3<br>BR6                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH REAR DOOR                    |
| FOOTWELL LAMP - LH                | IP27                                 | 2-WAY / WHITE                                                                        | INSTRUMENT PANEL LH SIDE        |
| FOOTWELL LAMP - RH                | IP26                                 | 2-WAY / WHITE                                                                        | INSTRUMENT PANEL RH SIDE        |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172  | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| GLOVE BOX LAMP                    | IP25                                 | 2-WAY / BROWN                                                                        | GLOVE BOX                       |
| REAR INTERIOR LAMP                | RC11<br>RC20                         | 2-WAY / BLACK<br>1-WAY / RED                                                         | REAR HEAD LINER                 |
| ROOF CONSOLE                      | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK   | ROOF, CENTER FRONT              |
| TRUNK LAMP                        | CA132                                | 2-WAY / BLACK                                                                        | TRUNK RH SIDE                   |
| TRUNK LOCK MOTOR                  | TM6                                  | 5-WAY / NATURAL                                                                      | TRUNK LID                       |
| VANITY MIRROR LAMP - LH           | RC9                                  | 2-WAY / BLACK                                                                        | LH SUN VISOR                    |
| VANITY MIRROR LAMP - RH           | RC8                                  | 2-WAY / BLACK                                                                        | RH SUN VISOR                    |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                   |
|-----------|--------------------------------------------------------------|----------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST            |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS        | LH B/C POST                |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                       | RH B/C POST                |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS               | LH LOWER A POST            |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR              |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE |

### GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 09.2**

**COMPONENTS**

| Component                                          | Connector(s)                             | Connector Description                                                              | Location                     |
|----------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------|------------------------------|
| AIR CONDITIONING CONTROL MODULE (AUTOMATIC, PANEL) | AC1<br>IP101                             | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                 | BEHIND CLIMATE CONTROL PANEL |
| AIR CONDITIONING CONTROL MODULE (MANUAL, PANEL)    | AC1<br>IP39<br>IP101<br>IP135            | 26-WAY / YELLOW<br>6-WAY / GREY<br>26-WAY / YELLOW<br>2-WAY / GREY                 | BEHIND CLIMATE CONTROL PANEL |
| AUDIO UNIT                                         | ID1<br>IP65<br>IP106                     | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                 | INSTRUMENT PANEL CENTER      |
| CIGAR LIGHTER                                      | IP42                                     | 2-WAY / ORANGE                                                                     | ASH TRAY                     |
| DOOR SWITCH PACK – DRIVER                          | FL1<br>FR1                               | 20-WAY / BLACK<br>20-WAY / BLACK                                                   | DRIVER DOOR ARM REST         |
| DOOR SWITCH PACK – LH REAR                         | BL1                                      | 8-WAY / BLACK                                                                      | LH REAR DOOR                 |
| DOOR SWITCH PACK – PASSENGER                       | FL10                                     | 8-WAY / BLACK                                                                      | PASSENGER DOOR               |
| DOOR SWITCH PACK – RH REAR                         | BR1                                      | 8-WAY / BLACK                                                                      | RH REAR DOOR                 |
| DYNAMIC STABILITY CONTROL SWITCH                   | IP29                                     | 6-WAY / BLACK                                                                      | INSTRUMENT PANEL             |
| HAZARD, SEAT HEATER SWITCHES                       | IP51                                     | 6-WAY / BLACK                                                                      | CENTER CONSOLE               |
| INSTRUMENT CLUSTER                                 | IP10<br>IP11                             | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                 | INSTRUMENT PANEL             |
| J GATE ASSEMBLY                                    | IP14                                     | 16-WAY / GREEN                                                                     | CENTER CONSOLE               |
| MASTER LIGHTING SWITCH                             | IP17                                     | 16-WAY / BLACK                                                                     | INSTRUMENT PANEL             |
| ROOF CONSOLE                                       | RC22<br>RC30<br>RC31<br>RC33<br>RC34     | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK | ROOF, CENTER FRONT           |
| STEERING WHEEL                                     | SW4                                      | 6-WAY / BLACK                                                                      | STEERING COLUMN              |
| TELEMATICS DISPLAY                                 | IP70<br>IP136<br>IP137<br>IP138<br>IP139 | 22-WAY / BLACK<br>2-WAY<br>2-WAY<br>2-WAY<br>2-WAY                                 | CENTER CONSOLE               |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS     | LH LOWER A POST                  |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS            | LH B/C POST                      |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                           | RH B/C POST                      |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                   | LH LOWER A POST                  |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

Instrument Cluster

| Pin       | Description and Characteristic                                                       |
|-----------|--------------------------------------------------------------------------------------|
| C IP10-17 | CAN +                                                                                |
| C IP10-18 | CAN -                                                                                |
| I IP11-8  | POWER GROUND: GROUND                                                                 |
| I IP11-23 | VARIABLE ASSIST POWER STEERING FEEDBACK: CLOSED LOOP                                 |
| I IP11-24 | IGNITION SWITCHED POWER SUPPLY: B+                                                   |
| O IP11-25 | VARIABLE ASSIST POWER STEERING DRIVE: 864 mA = MAXIMUM ASSIST; 0 mA = MINIMUM ASSIST |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

Fig. 10.1

COMPONENTS

| Component                       | Connector(s) | Connector Description              | Location                     |
|---------------------------------|--------------|------------------------------------|------------------------------|
| ELECTROCHROMIC REAR VIEW MIRROR | RC5          | 5-WAY / BLACK                      | REAR VIEW MIRROR             |
| INSTRUMENT CLUSTER              | IP10<br>IP11 | 26-WAY / YELLOW<br>26-WAY / YELLOW | INSTRUMENT PANEL             |
| VARIABLE ASSIST SERVO           | EM91         | 2-WAY                              | STEERING RACK PINION HOUSING |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                    | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB145     | 8-WAY / BLACK / ENGINE HARNESS TO JUNCTION BOX HARNESS            | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 10.2****COMPONENTS**

| <b>Component</b>          | <b>Connector(s)</b> | <b>Connector Description</b>     | <b>Location</b>          |
|---------------------------|---------------------|----------------------------------|--------------------------|
| DOOR SWITCH PACK – DRIVER | FL1<br>FR1          | 20-WAY / BLACK<br>20-WAY / BLACK | DRIVER DOOR ARM REST     |
| FOLD FLAT MODULE          | CA270               | 7-WAY / GREY                     | BEHIND PASSENGER AIR BAG |
| DOOR MIRROR – LH          | FL5                 | 22-WAY / BLACK                   | LH FRONT DOOR            |
| DOOR MIRROR – RH          | FR4                 | 22-WAY / BLACK                   | RH FRONT DOOR            |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                   | <b>Location</b>     |
|------------------|------------------------------------------------|---------------------|
| CA15             | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST  |
| CA16             | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST  |
| CA20             | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST  |
| CA21             | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST  |
| CA65             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW RH FRONT SEAT |
| CA70             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW LH FRONT SEAT |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                         |
|---------------|-----------------------------------------|
| G4            | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15           | PASSENGER COMPARTMENT / LH LOWER A POST |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 11.1****COMPONENTS**

| <b>Component</b>             | <b>Connector(s)</b>      | <b>Connector Description</b>                                   | <b>Location</b> |
|------------------------------|--------------------------|----------------------------------------------------------------|-----------------|
| SEAT LUMBAR PUMP – LH        | LS19                     | 3-WAY / WHITE                                                  | LH SEAT         |
| SEAT LUMBAR PUMP – RH        | RS19                     | 3-WAY / WHITE                                                  | RH SEAT         |
| SEAT LUMBAR SWITCH PACK – LH | LS16                     | 7-WAY / BLACK                                                  | LH FRONT SEAT   |
| SEAT LUMBAR SWITCH PACK – RH | RS16                     | 7-WAY / BLACK                                                  | RH FRONT SEAT   |
| SEAT MOVEMENT MOTORS – LH    | LS2<br>LS4<br>LS5<br>LS6 | 2-WAY / BLACK<br>2-WAY / RED<br>2-WAY / BLACK<br>2-WAY / RED   | BELOW LH SEAT   |
| SEAT MOVEMENT MOTORS – RH    | RS2<br>RS4<br>RS5<br>RS6 | 2-WAY / BLACK<br>2-WAY / RED<br>2-WAY / BLACK<br>2-WAY / BLACK | BELOW RH SEAT   |
| SEAT SWITCH PACK – LH        | LS1                      | 12-WAY / GREY                                                  | LH SEAT         |
| SEAT SWITCH PACK – RH        | RS1                      | 12-WAY / GREY                                                  | RH SEAT         |

**HARNES IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                   | <b>Location</b>     |
|------------------|------------------------------------------------|---------------------|
| CA65             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW RH FRONT SEAT |
| CA70             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW LH FRONT SEAT |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                         |
|---------------|-----------------------------------------|
| G4            | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15           | PASSENGER COMPARTMENT / LH LOWER A POST |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 11.2****COMPONENTS**

| <b>Component</b>         | <b>Connector(s)</b> | <b>Connector Description</b> | <b>Location</b> |
|--------------------------|---------------------|------------------------------|-----------------|
| SEAT MOVEMENT MOTOR – LH | LS10                | 2-WAY / RED                  | BELOW LH SEAT   |
| SEAT MOVEMENT MOTOR – RH | RS10                | 2-WAY / RED                  | BELOW RH SEAT   |
| SEAT SWITCH PACK – LH    | LS1                 | 12-WAY / GREY                | LH SEAT         |
| SEAT SWITCH PACK – RH    | RS1                 | 12-WAY / GREY                | RH SEAT         |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                   | <b>Location</b>     |
|------------------|------------------------------------------------|---------------------|
| CA65             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW RH FRONT SEAT |
| CA70             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS | BELOW LH FRONT SEAT |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                         |
|---------------|-----------------------------------------|
| G4            | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15           | PASSENGER COMPARTMENT / LH LOWER A POST |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 11.3****COMPONENTS**

| <b>Component</b>         | <b>Connector(s)</b> | <b>Connector Description</b> | <b>Location</b> |
|--------------------------|---------------------|------------------------------|-----------------|
| SEAT BACK HEATER – LH    | LS7                 | 4-WAY / GREY                 | BELOW LH SEAT   |
| SEAT BACK HEATER – RH    | RS7                 | 4-WAY / GREY                 | BELOW RH SEAT   |
| SEAT CUSHION HEATER – LH | LS7                 | 4-WAY / GREY                 | BELOW LH SEAT   |
| SEAT CUSHION HEATER – RH | RS7                 | 4-WAY / GREY                 | BELOW RH SEAT   |
| SEAT HEATER MODULE – LH  | LS13                | 12-WAY / GREY                | BELOW LH SEAT   |
| SEAT HEATER MODULE – RH  | RS13                | 12-WAY / GREY                | BELOW RH SEAT   |
| SEAT HEATER SWITCH – LH  | IP51                | 6-WAY / BLACK                | CENTER CONSOLE  |
| SEAT HEATER SWITCH – RH  | IP56                | 6-WAY / BLACK                | CENTER CONSOLE  |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                              | <b>Location</b>     |
|------------------|-----------------------------------------------------------|---------------------|
| CA65             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS            | BELOW RH FRONT SEAT |
| CA70             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS            | BELOW LH FRONT SEAT |
| CA240            | 12-WAY / GREY / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST     |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                           |
|---------------|-------------------------------------------|
| G4            | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G5            | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15           | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G36           | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



## CONTROL MODULE PIN-OUT INFORMATION

**Fig. 12.1**

### General Electronic Control Module

| Pin        | Description and Characteristic                                                          |
|------------|-----------------------------------------------------------------------------------------|
| O CA86-4   | CENTRAL LOCKING MOTORS DRIVE – DOUBLE LOCKING: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| PG CA86-5  | POWER GROUND: GROUND                                                                    |
| I CA86-14  | RESET SWITCH: OPEN CIRCUIT / GROUND                                                     |
| I CA86-16  | SET SWITCH: OPEN CIRCUIT / GROUND                                                       |
| I CA86-18  | RH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                       |
| I CA86-19  | LOCK SWITCH: OPEN CIRCUIT / GROUND                                                      |
| I CA86-22  | TRUNK LID AJAR: TRUNK OPEN = OPEN CIRCUIT; TRUNK CLOSED = GROUND                        |
| O CA87-2   | TRUNK LOCK MOTOR DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+                        |
| O CA87-3   | CENTRAL LOCKING MOTORS DRIVE – LOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+           |
| O CA87-5   | CENTRAL LOCKING REAR MOTORS DRIVE – UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+    |
| I CA87-15  | LH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                       |
| I CA87-16  | UNLOCK SWITCH: OPEN CIRCUIT / GROUND                                                    |
| O IP5-1    | PASSENGER DOORS LOCK MOTOR DRIVE – UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+     |
| I IP5-3    | EXTERNAL ANTENNA                                                                        |
| O IP5-5    | DRIVER DOOR LOCK MOTOR DRIVE – UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+         |
| I IP5-16   | TRUNK RELEASE SWITCH: GROUND WHEN SELECTED                                              |
| S IP5-18   | SCP –                                                                                   |
| S IP5-19   | SCP +                                                                                   |
| SG IP6-1   | LOGIC GROUND: GROUND                                                                    |
| I IP6-8    | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN                                                  |
| I IP6-21   | PASSENGER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                     |
| I IP6-22   | DRIVER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                        |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                                                      |

### Instrument Cluster

| Pin       | Description and Characteristic      |
|-----------|-------------------------------------|
| I IP10-13 | EMERGENCY UNLOCK: B+ WHEN ACTIVATED |
| S IP10-22 | SCP +                               |
| S IP10-23 | SCP –                               |
| I IP11-7  | BATTERY POWER SUPPLY: B+            |
| I IP11-8  | POWER GROUND: GROUND                |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

### COMPONENTS

| Component                         | Connector(s)                        | Connector Description                                                                | Location                        |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR LATCH ASSEMBLY – LH FRONT    | FL3<br>FL9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY – LH REAR     | BL3<br>BL6                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH REAR DOOR                    |
| DOOR LATCH ASSEMBLY – RH FRONT    | FR3<br>FR9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY – RH REAR     | BR3<br>BR6                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH REAR DOOR                    |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| IGNITION SWITCH                   | IP18                                | 7-WAY / BLACK                                                                        | STEERING COLUMN                 |
| INERTIA SWITCH                    | IP132                               | 3-WAY / BLACK                                                                        | LOWER RH A POST                 |
| INSTRUMENT CLUSTER                | IP10<br>IP11                        | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                   | INSTRUMENT PANEL                |
| TRUNK LOCK MOTOR                  | TM6                                 | 5-WAY / NATURAL                                                                      | TRUNK LID                       |
| TRUNK RELEASE SWITCH              | TM8                                 | 2-WAY / WHITE                                                                        | TRUNK LID                       |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                   |
|-----------|--------------------------------------------------------------|----------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST            |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS        | LH B/C POST                |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                       | RH B/C POST                |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR              |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE |

### GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin        | Description and Characteristic                                                       |
|------------|--------------------------------------------------------------------------------------|
| PG CA86-5  | POWER GROUND: GROUND                                                                 |
| I CA86-14  | RESET SWITCH: OPEN CIRCUIT / GROUND                                                  |
| I CA86-16  | SET SWITCH: OPEN CIRCUIT / GROUND                                                    |
| I CA86-18  | RH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                    |
| I CA86-19  | LOCK SWITCH: OPEN CIRCUIT / GROUND                                                   |
| I CA86-22  | TRUNK LID AJAR: TRUNK OPEN = OPEN CIRCUIT; TRUNK CLOSED = GROUND                     |
| O CA87-2   | TRUNK LOCK MOTOR DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+                     |
| O CA87-3   | CENTRAL LOCKING MOTORS DRIVE - LOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+        |
| O CA87-5   | CENTRAL LOCKING REAR MOTORS DRIVE - UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+ |
| I CA87-15  | LH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                    |
| I CA87-16  | UNLOCK SWITCH: OPEN CIRCUIT / GROUND                                                 |
| O IP5-1    | PASSENGER DOORS LOCK MOTOR DRIVE - UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+  |
| I IP5-3    | EXTERNAL ANTENNA                                                                     |
| O IP5-5    | DRIVER DOOR LOCK MOTOR DRIVE - UNLOCK: TO ACTIVATE, GECM SWITCHES CIRCUIT TO B+      |
| I IP5-16   | TRUNK RELEASE SWITCH: GROUND WHEN SELECTED                                           |
| S IP5-18   | SCP -                                                                                |
| S IP5-19   | SCP +                                                                                |
| SG IP6-1   | LOGIC GROUND: GROUND                                                                 |
| I IP6-8    | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN                                               |
| I IP6-21   | PASSENGER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                  |
| I IP6-22   | DRIVER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND                     |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                                                   |

### Instrument Cluster

| Pin       | Description and Characteristic      |
|-----------|-------------------------------------|
| I IP10-13 | EMERGENCY UNLOCK: B+ WHEN ACTIVATED |
| S IP10-22 | SCP +                               |
| S IP10-23 | SCP -                               |
| I IP11-7  | BATTERY POWER SUPPLY: B+            |
| I IP11-8  | POWER GROUND: GROUND                |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 12.2

### COMPONENTS

| Component                         | Connector(s)                        | Connector Description                                                                | Location                        |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR LATCH ASSEMBLY - LH FRONT    | FL3<br>FL9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - LH REAR     | BL3<br>BL6                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH REAR DOOR                    |
| DOOR LATCH ASSEMBLY - RH FRONT    | FR3<br>FR9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - RH REAR     | BR3<br>BR6                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH REAR DOOR                    |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| IGNITION SWITCH                   | IP18                                | 7-WAY / BLACK                                                                        | STEERING COLUMN                 |
| INERTIA SWITCH                    | IP132                               | 3-WAY / BLACK                                                                        | LOWER RH A POST                 |
| INSTRUMENT CLUSTER                | IP10<br>IP11                        | 26-WAY / YELLOW<br>26-WAY / YELLOW                                                   | INSTRUMENT PANEL                |
| TRUNK LOCK MOTOR                  | TM6                                 | 5-WAY / NATURAL                                                                      | TRUNK LID                       |
| TRUNK RELEASE SWITCH              | TM8                                 | 2-WAY / WHITE                                                                        | TRUNK LID                       |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                   |
|-----------|--------------------------------------------------------------|----------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST            |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS               | DRIVER SIDE A POST         |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS        | LH B/C POST                |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                       | RH B/C POST                |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS            | TRUNK LH REAR              |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                             | BELOW PARCEL SHELF LH SIDE |

### GROUNDINGS

| Ground | Location                                  |
|--------|-------------------------------------------|
| G1     | TRUNK / LH REAR                           |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## CONTROL MODULE PIN-OUT INFORMATION

### General Electronic Control Module

| Pin | Description and Characteristic                                                       |
|-----|--------------------------------------------------------------------------------------|
| PG  | CA86-5 POWER GROUND: GROUND                                                          |
| I   | CA86-17 INCLINATION SENSOR SENSE: ALARM TRIGGERED = GROUND; ALARM NOT TRIGGERED = B+ |
| I   | CA86-18 RH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND            |
| I   | CA86-19 LOCK SWITCH: OPEN CIRCUIT / GROUND                                           |
| O   | CA86-20 INCLINATION AND INTRUSION SENSORS POWER SUPPLY: B+                           |
| I   | CA86-22 TRUNK LID AJAR: TRUNK OPEN = OPEN CIRCUIT; TRUNK CLOSED = GROUND             |
| I   | CA86-23 INTRUSION SENSOR SENSE: ALARM TRIGGERED = GROUND; ALARM NOT TRIGGERED = B+   |
| O   | CA87-1 PASSIVE SECURITY SOUNDER DRIVE: TO ACTIVATE, GECC SWITCHES CIRCUIT TO B+      |
| O   | CA87-2 TRUNK LOCK MOTOR DRIVE: TO ACTIVATE, GECC SWITCHES CIRCUIT TO B+              |
| I   | CA87-15 LH REAR DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND            |
| I   | IP5-3 EXTERNAL ANTENNA                                                               |
| O   | IP5-14 HORN RELAY DRIVE : TO ACTIVATE, GECC SWITCHES CIRCUIT TO GROUND               |
| I   | IP5-16 TRUNK RELEASE SWITCH: GROUND WHEN SELECTED                                    |
| S   | IP5-18 SCP -                                                                         |
| S   | IP5-19 SCP +                                                                         |
| SG  | IP6-1 LOGIC GROUND: GROUND                                                           |
| I   | IP6-8 KEY-IN IGNITION SWITCH: B+ WHEN KEY IN                                         |
| I   | IP6-9 HEADLAMP FLASH SWITCH: GROUND WHEN SELECTED                                    |
| I   | IP6-10 AUDIO UNIT PRESENCE SENSE: GROUND WHEN RADIO INSTALLED                        |
| I   | IP6-21 PASSENGER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND           |
| I   | IP6-22 DRIVER DOOR AJAR: DOOR OPEN = OPEN CIRCUIT; DOOR CLOSED = GROUND              |
| B+  | JB172-1 BATTERY POWER SUPPLY (LOCKING): B+                                           |
| O   | JB172-3 RH FRONT TURN SIGNAL: TO ACTIVATE, GECC SWITCHES CIRCUIT TO B+               |
| O   | JB172-4 LH FRONT TURN SIGNAL: TO ACTIVATE, GECC SWITCHES CIRCUIT TO B+               |
| B+  | JB172-5 BATTERY POWER SUPPLY (TURN SIGNALS): B+                                      |
| D   | JB172-18 ACTIVE SECURITY SOUNDER DRIVE: ENCODED COMMUNICATIONS                       |
| I   | JB172-21 HOOD AJAR: HOOD OPEN = OPEN CIRCUIT; HOOD CLOSED = GROUND                   |

### Instrument Cluster

| Pin | Description and Characteristic                                          |
|-----|-------------------------------------------------------------------------|
| O   | IP10-2 SECURITY INDICATOR DRIVE: TO ACTIVATE, IC SWITCHES CIRCUIT TO B+ |
| D   | IP10-3 PATS 1: ENCODED COMMUNICATION                                    |
| D   | IP10-4 PATS 2: ENCODED COMMUNICATION                                    |
| I   | IP10-5 PATS GROUND: GROUND                                              |
| O   | IP10-6 PATS TRANSCEIVER POWER: B+                                       |
| C   | IP10-17 CAN +                                                           |
| C   | IP10-18 CAN -                                                           |
| S   | IP10-22 SCP +                                                           |
| S   | IP10-23 SCP -                                                           |
| I   | IP11-7 BATTERY POWER SUPPLY: B+                                         |
| I   | IP11-8 POWER GROUND: GROUND                                             |
| I   | IP11-11 IGNITION SWITCHED POWER SUPPLY (III): B+                        |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

## Fig. 12.3

### COMPONENTS

| Component                             | Connector(s) | Connector Description | Location                                   |
|---------------------------------------|--------------|-----------------------|--------------------------------------------|
| ACTIVE SECURITY SOUNDER               | JB70         | 6-WAY / BLACK         | BEHIND FRONT LH WHEEL ARCH LINER           |
| AUDIO UNIT                            | ID1          | 2-WAY / BLACK         | INSTRUMENT PANEL CENTER                    |
|                                       | IP65         | 20-WAY / BLACK        |                                            |
|                                       | IP106        | 2-WAY / COAXIAL       |                                            |
| ENGINE CONTROL MODULE (2.0L)          | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| ENGINE CONTROL MODULE (2.5L & 3.0L)   | EN16         | 134-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| DOOR LATCH ASSEMBLY - LH FRONT        | FL3          | 8-WAY / BLACK         | LH FRONT DOOR                              |
|                                       | FL9          | 2-WAY / BLACK         |                                            |
| DOOR LATCH ASSEMBLY - LH REAR         | BL3          | 8-WAY / BLACK         | LH REAR DOOR                               |
|                                       | BL6          | 2-WAY / BLACK         |                                            |
| DOOR LATCH ASSEMBLY - RH FRONT        | FR3          | 8-WAY / BLACK         | RH FRONT DOOR                              |
|                                       | FR9          | 2-WAY / BLACK         |                                            |
| DOOR LATCH ASSEMBLY - RH REAR         | BR3          | 8-WAY / BLACK         | RH REAR DOOR                               |
|                                       | BR6          | 2-WAY / BLACK         |                                            |
| GENERAL ELECTRONIC CONTROL MODULE     | CA86         | 23-WAY / GREY         | BEHIND INSTRUMENT PANEL RH SIDE            |
|                                       | CA87         | 23-WAY / GREEN        |                                            |
|                                       | IP5          | 23-WAY / BROWN        |                                            |
|                                       | IP6          | 23-WAY / WHITE        |                                            |
|                                       | JB172        | 23-WAY / BLUE         |                                            |
| HOOD SECURITY SWITCH                  | JB81         | 2-WAY / BLACK         | ADJACENT TO RH FRONT SUSPENSION TURRET     |
| HORN RELAY                            | —            | —                     | POWER DISTRIBUTION FUSE BOX R3             |
| HORNS                                 | JB87         | 2-WAY / BLACK         | ADJACENT TO BATTERY                        |
| IGNITION SWITCH                       | IP18         | 7-WAY / BLACK         | STEERING COLUMN                            |
| INCLINATION SENSOR                    | CA190        | 6-WAY / BLACK         | TRUNK LH REAR                              |
| INSTRUMENT CLUSTER                    | IP10         | 26-WAY / YELLOW       | INSTRUMENT PANEL                           |
|                                       | IP11         | 26-WAY / YELLOW       |                                            |
| PASSIVE ANTI-THEFT SYSTEM TRANSCEIVER | IP15         | 4-WAY / GREEN         | STEERING COLUMN, IGNITION SWITCH           |
| PASSIVE SECURITY SOUNDER              | SL1          | 1-WAY                 | LH FRONT OF VEHICLE                        |
|                                       | SL2          | 1-WAY                 |                                            |
| POWER DISTRIBUTION FUSE BOX           | —            | —                     | ENGINE COMPARTMENT LH SIDE                 |
| ROOF CONSOLE                          | RC22         | 22-WAY / BLACK        | ROOF, CENTER FRONT                         |
|                                       | RC30         | 4-WAY / BLACK         |                                            |
|                                       | RC31         | 2-WAY / BLACK         |                                            |
|                                       | RC33         | 4-WAY / BLACK         |                                            |
|                                       | RC34         | 6-WAY / BLACK         |                                            |
| SECURITY INDICATOR                    | IP29         | 6-WAY / BLACK         | CENTER CONSOLE                             |
| TRUNK LOCK MOTOR                      | TM6          | 5-WAY / NATURAL       | TRUNK LID                                  |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                        |
|-----------|------------------------------------------------------------------|---------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS     | LH LOWER A POST                 |
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST              |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST              |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS            | LH B/C POST                     |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                           | RH B/C POST                     |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                   | LH LOWER A POST                 |
| CA45      | 6-WAY / GREY / CABIN HARNESS TO TRUNK LID HARNESS                | TRUNK LH REAR                   |
| CA170     | 16-WAY / GREEN / IN-LINE CONNECTOR                               | LH LOWER A POST                 |
| JB79      | 6-WAY / BLACK / SECURITY SOUNDER LINK LEAD                       | BEHIND FRONT LH WHEELARCH LINER |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                 |
| TL10      | 6-WAY / GREY / TRUNK LID HARNESS                                 | BELOW PARCEL SHELF LH SIDE      |

### GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G1     | TRUNK / LH REAR                                              |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 13.1**

**General Electronic Control Module**

| Pin        | Description and Characteristic                                                                                            |
|------------|---------------------------------------------------------------------------------------------------------------------------|
| PG CA86-5  | POWER GROUND: GROUND                                                                                                      |
| I IP5-4    | INTERMITTENT WIPE INTERVAL: 1 = 0.5 – 4 kΩ; 2 = 4 – 14 kΩ; 3 = 14 – 24 kΩ; 4 = 24 – 34 kΩ; 5 = 34 – 43 kΩ; 6 = 43 – 57 kΩ |
| S IP5-18   | SCP –                                                                                                                     |
| S IP5-19   | SCP +                                                                                                                     |
| O IP5-21   | WINDSHIELD WIPER RELAY DRIVE: TO ACTIVATE, CIRCUIT SWITCHED TO GROUND                                                     |
| SG IP6-1   | LOGIC GROUND: GROUND                                                                                                      |
| I IP6-4    | INTERMITTENT WIPE: B+ WHEN SELECTED                                                                                       |
| I IP6-5    | WASHER SWITCH: WASHER ON = GROUND; WASHER OFF = B+                                                                        |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                                                                                        |
| I JB172-2  | WIPER MOTOR PARK SWITCH: PARKED = GROUND; NOT PARKED = B+                                                                 |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                                                                                   |
| O JB172-23 | POWER WASH PUMP RELAY DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO GROUND                                                 |

**NOTE: Refer to the Appendix at the rear of this book for Network Messages.**

**COMPONENTS**

| Component                         | Connector(s)                        | Connector Description                                                                | Location                         |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE  |
| POWER DISTRIBUTION FUSE BOX       | —                                   | —                                                                                    | ENGINE COMPARTMENT LH SIDE       |
| POWER WASH PUMP                   | JB65                                | 2-WAY / GREY                                                                         | BEHIND RH FRONT WHEEL ARCH LINER |
| POWER WASH PUMP RELAY             | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R5   |
| WINDSHIELD WASHER PUMP            | JB109                               | 2-WAY / WHITE                                                                        | ENGINE COMPARTMENT RH FRONT      |
| WINDSHIELD WIPER MOTOR RELAY      | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R1   |
| WIPER MOTOR ASSEMBLY              | JB63                                | 5-WAY / BLACK                                                                        | BASE OF WINDSHIELD LH SIDE       |
| WIPER SWITCH ASSEMBLY             | IP16                                | 10-WAY / GREY                                                                        | STEERING COLUMN                  |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| JB3       | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE        |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

**FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 13.2**

**General Electronic Control Module**

| Pin        | Description and Characteristic                                                                                            |
|------------|---------------------------------------------------------------------------------------------------------------------------|
| PG CA86-5  | POWER GROUND: GROUND                                                                                                      |
| I IP5-4    | INTERMITTENT WIPE INTERVAL: 1 = 0.5 – 4 kΩ; 2 = 4 – 14 kΩ; 3 = 14 – 24 kΩ; 4 = 24 – 34 kΩ; 5 = 34 – 43 kΩ; 6 = 43 – 57 kΩ |
| S IP5-18   | SCP –                                                                                                                     |
| S IP5-19   | SCP +                                                                                                                     |
| O IP5-21   | WINDSHIELD WIPER RELAY DRIVE: TO ACTIVATE, CIRCUIT SWITCHED TO GROUND                                                     |
| SG IP6-1   | LOGIC GROUND: GROUND                                                                                                      |
| I IP6-4    | INTERMITTENT WIPE: B+ WHEN SELECTED                                                                                       |
| I IP6-5    | WASHER SWITCH: WASHER ON = GROUND; WASHER OFF = B+                                                                        |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                                                                                        |
| I JB172-2  | WIPER MOTOR PARK SWITCH: PARKED = GROUND; NOT PARKED = B+                                                                 |
| B+ JB172-5 | BATTERY POWER SUPPLY (TURN SIGNALS): B+                                                                                   |
| O JB172-23 | POWER WASH PUMP RELAY DRIVE: TO ACTIVATE, GECM SWITCHES CIRCUIT TO GROUND                                                 |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

**COMPONENTS**

| Component                         | Connector(s)                        | Connector Description                                                                | Location                         |
|-----------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE  |
| POWER DISTRIBUTION FUSE BOX       | —                                   | —                                                                                    | ENGINE COMPARTMENT LH SIDE       |
| POWER WASH PUMP                   | JB65                                | 2-WAY / GREY                                                                         | BEHIND RH FRONT WHEEL ARCH LINER |
| POWER WASH PUMP RELAY             | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R5   |
| RAIN SENSING CONTROL MODULE       | CA6                                 | 12-WAY / BLACK                                                                       | BEHIND INSTRUMENT PANEL LH SIDE  |
| RAIN SENSOR                       | RC15                                | 3-WAY / BLACK                                                                        | BEHIND REAR VIEW MIRROR          |
| WINDSHIELD WASHER PUMP            | JB109                               | 2-WAY / WHITE                                                                        | ENGINE COMPARTMENT RH FRONT      |
| WINDSHIELD WIPER MOTOR RELAY      | —                                   | —                                                                                    | POWER DISTRIBUTION FUSE BOX R1   |
| WIPER MOTOR ASSEMBLY              | JB63                                | 5-WAY / BLACK                                                                        | BASE OF WINDSHIELD LH SIDE       |
| WIPER SWITCH ASSEMBLY             | IP16                                | 10-WAY / GREY                                                                        | STEERING COLUMN                  |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA10      | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS                   | BELOW THE GLOVEBOX                    |
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                     | RH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS        | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| JB3       | 14-WAY / BLUE / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE        |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS  | LH LOWER A POST                       |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUND**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST                      |
| G10    | ENGINE COMPARTMENT / UNDER RH HEADLAMP ASSEMBLY              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM                    |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

## General Electronic Control Module

| Pin | Description and Characteristic                    |
|-----|---------------------------------------------------|
| I   | CA86-16 SET SWITCH: OPEN CIRCUIT / GROUND         |
| O   | CA87-17 GLOBAL CLOSE REQUEST: 20 ms PULSED SIGNAL |
| I   | IP5-3 EXTERNAL ANTENNA                            |
| SG  | IP6-1 LOGIC GROUND: GROUND                        |
| B+  | JB172-1 BATTERY POWER SUPPLY (LOCKING): B+        |

## COMPONENTS

| Component                          | Connector(s)                        | Connector Description                                                                | Location                        |
|------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR LATCH ASSEMBLY – LH FRONT     | FL3<br>FL9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR SWITCH PACK – DRIVER (LHD)    | FL1                                 | 20-WAY / BLACK                                                                       | DRIVER DOOR ARM REST            |
| DOOR SWITCH PACK – LH REAR         | BL1                                 | 8-WAY / BLACK                                                                        | LH REAR DOOR                    |
| DOOR SWITCH PACK – PASSENGER (LHD) | FR10                                | 8-WAY / BLACK                                                                        | PASSENGER DOOR                  |
| DOOR SWITCH PACK – RH REAR         | BR1                                 | 8-WAY / BLACK                                                                        | RH REAR DOOR                    |
| GENERAL ELECTRONIC CONTROL MODULE  | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| WINDOW MOTOR ASSEMBLY – LH FRONT   | FL2                                 | 8-WAY / GREY                                                                         | LH FRONT DOOR                   |
| WINDOW MOTOR ASSEMBLY – LH REAR    | BL2                                 | 8-WAY / GREY                                                                         | LH REAR DOOR                    |
| WINDOW MOTOR ASSEMBLY – RH FRONT   | FR2                                 | 8-WAY / GREY                                                                         | RH FRONT DOOR                   |
| WINDOW MOTOR ASSEMBLY – RH REAR    | BR2                                 | 8-WAY / GREY                                                                         | RH REAR DOOR                    |

## HARNES IN-LINE CONNECTORS

| Connector | Connector Description                               | Location           |
|-----------|-----------------------------------------------------|--------------------|
| CA15      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA16      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA20      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNES TO CABIN HARNES | LH B/C POST        |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD              | RH B/C POST        |

## GROUNDS

| Ground | Location                                |
|--------|-----------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

General Electronic Control Module

| Pin        | Description and Characteristic            |
|------------|-------------------------------------------|
| I CA86-16  | SET SWITCH: OPEN CIRCUIT / GROUND         |
| O CA87-17  | GLOBAL CLOSE REQUEST: 20 ms PULSED SIGNAL |
| I IP5-3    | EXTERNAL ANTENNA                          |
| SG IP6-1   | LOGIC GROUND: GROUND                      |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+        |

COMPONENTS

| Component                          | Connector(s)                        | Connector Description                                                                | Location                        |
|------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| DOOR LATCH ASSEMBLY – LH FRONT     | FL3<br>FL9                          | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR SWITCH PACK – DRIVER (LHD)    | FL1                                 | 20-WAY / BLACK                                                                       | DRIVER DOOR ARM REST            |
| DOOR SWITCH PACK – LH REAR         | BL1                                 | 8-WAY / BLACK                                                                        | LH REAR DOOR                    |
| DOOR SWITCH PACK – PASSENGER (LHD) | FR10                                | 8-WAY / BLACK                                                                        | PASSENGER DOOR                  |
| DOOR SWITCH PACK – RH REAR         | BR1                                 | 8-WAY / BLACK                                                                        | RH REAR DOOR                    |
| GENERAL ELECTRONIC CONTROL MODULE  | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| WINDOW MOTOR ASSEMBLY – LH FRONT   | FL2                                 | 8-WAY / GREY                                                                         | LH FRONT DOOR                   |
| WINDOW MOTOR ASSEMBLY – LH REAR    | BL2                                 | 8-WAY / GREY                                                                         | LH REAR DOOR                    |
| WINDOW MOTOR ASSEMBLY – RH FRONT   | FR2                                 | 8-WAY / GREY                                                                         | RH FRONT DOOR                   |
| WINDOW MOTOR ASSEMBLY – RH REAR    | BR2                                 | 8-WAY / GREY                                                                         | RH REAR DOOR                    |

HARNES IN-LINE CONNECTORS

| Connector | Connector Description                               | Location           |
|-----------|-----------------------------------------------------|--------------------|
| CA15      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA20      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA21      | 20-WAY / BLACK / DOOR HARNES TO CABIN HARNES        | DRIVER SIDE A POST |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNES TO CABIN HARNES | LH B/C POST        |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD              | RH B/C POST        |

GROUNDS

| Ground | Location                                |
|--------|-----------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

Control Module

| Pin        | Description and Characteristic                           |
|------------|----------------------------------------------------------|
| I CA86-16  | SET SWITCH: OPEN CIRCUIT / GROUND                        |
| O CA87-17  | GLOBAL CLOSE REQUEST: 20 ms PULSED SIGNAL                |
| O CA87-20  | VEHICLE SPEED SIGNAL: PULSED SIGNAL, 8000 PULSES PER MPH |
| I IP5-3    | EXTERNAL ANTENNA                                         |
| S IP5-18   | SCP -                                                    |
| S IP5-19   | SCP +                                                    |
| SG IP6-1   | LOGIC GROUND: GROUND                                     |
| B+ JB172-1 | BATTERY POWER SUPPLY (LOCKING): B+                       |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

Fig. 14.3

COMPONENTS

| Component                         | Connector(s)                         | Connector Description                                                                | Location                        |
|-----------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172  | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| DOOR LATCH ASSEMBLY - LH FRONT    | FL3<br>FL9                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | LH FRONT DOOR                   |
| DOOR LATCH ASSEMBLY - RH FRONT    | FR3<br>FR9                           | 8-WAY / BLACK<br>2-WAY / BLACK                                                       | RH FRONT DOOR                   |
| ROOF CONSOLE                      | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK   | ROOF, CENTER FRONT              |
| SLIDING ROOF CONTROL MODULE       | RC14                                 | 10-WAY / GREY                                                                        | ROOF CONSOLE                    |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                          | Location           |
|-----------|------------------------------------------------|--------------------|
| CA15      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA20      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS | DRIVER SIDE A POST |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS | LH LOWER A POST    |

GROUND S

| Ground | Location                                |
|--------|-----------------------------------------|
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



**Audio Unit**

| Pin        | Description and Characteristic                                                          |
|------------|-----------------------------------------------------------------------------------------|
| D2 ID1-1   | D2B NETWORK TRANSMIT                                                                    |
| D2 ID1-2   | D2B NETWORK RECEIVE                                                                     |
| PG IP65-1  | POWER GROUND: GROUND                                                                    |
| B+ IP65-2  | IGNITION SWITCHED POWER SUPPLY (I): B+                                                  |
| O IP65-3   | LH REAR AUDIO +                                                                         |
| O IP65-4   | LH REAR AUDIO -                                                                         |
| O IP65-5   | RH REAR AUDIO +                                                                         |
| O IP65-6   | RH REAR AUDIO -                                                                         |
| I IP65-7   | TELEPHONE MUTE SIGNAL                                                                   |
| O IP65-8   | SECURITY SYSTEM GROUND SENSING: GROUND WHEN AUDIO UNIT INSTALLED                        |
| S IP65-9   | SCP +                                                                                   |
| S IP65-10  | SCP -                                                                                   |
| B+ IP65-11 | BATTERY POWER SUPPLY: B+                                                                |
| O IP65-13  | LH FRONT AUDIO -                                                                        |
| O IP65-14  | LH FRONT AUDIO +                                                                        |
| O IP65-15  | RH FRONT AUDIO -                                                                        |
| O IP65-16  | RH FRONT AUDIO +                                                                        |
| I IP65-17  | DIMMER CONTROLLED ILLUMINATION: PWM, 80Hz, GROUND = 0% DUTY CYCLE, B+ = 100% DUTY CYCLE |
| I IP65-18  | STEERING WHEEL SWITCHES: STEPPED RESISTANCE                                             |
| O IP65-19  | D2B NETWORK WAKE-UP                                                                     |

**NOTE:** Refer to the Appendix at the rear of this book for Network Messages.

**COMPONENTS**

| Component              | Connector(s)         | Connector Description                              | Location                |
|------------------------|----------------------|----------------------------------------------------|-------------------------|
| ANTENNA MODULE         | CA117                | —                                                  | BEHIND LH E POST TRIM   |
| AUDIO CONTROL SWITCHES | SW4                  | 6-WAY / BLACK                                      | STEERING WHEEL          |
| AUDIO UNIT             | ID1<br>IP65<br>IP106 | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL | INSTRUMENT PANEL CENTER |
| CD AUTOCHANGER         | CA301<br>CD2         | 3-WAY / BLACK<br>2-WAY / BLACK                     | TRUNK LH REAR           |
| HEATED REAR WINDOW     | ZA1<br>ZA10          | —                                                  | REAR WINDOW             |
| SPEAKER – LH FRONT     | FL6                  | 2-WAY / WHITE                                      | LH FRONT DOOR CASING    |
| SPEAKER – LH REAR      | BL4                  | 2-WAY / WHITE                                      | LH REAR DOOR CASING     |
| SPEAKER – RH FRONT     | FR5                  | 2-WAY / WHITE                                      | RH FRONT DOOR CASING    |
| SPEAKER – RH REAR      | BR4                  | 2-WAY / WHITE                                      | RH REAR DOOR CASING     |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS            | LH B/C POST                      |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                           | RH B/C POST                      |
| CA189     | 2-WAY / COAXIAL / AUDIO SYSTEM ANTENNA                           | LH LOWER A POST                  |
| CA230     | 16-WAY / BLUE / CABIN HARNESS TO INSTRUMENT PANEL HARNESS        | LH LOWER A POST                  |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G1     | TRUNK / LH REAR                                              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

**CAUTION:** The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

**NOTE:** The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

Audio Unit

| Pin        | Description and Characteristic                                                          |
|------------|-----------------------------------------------------------------------------------------|
| D2 ID1-1   | D2B NETWORK TRANSMIT                                                                    |
| D2 ID1-2   | D2B NETWORK RECEIVE                                                                     |
| PG IP65-1  | POWER GROUND: GROUND                                                                    |
| B+ IP65-2  | IGNITION SWITCHED POWER SUPPLY (I): B+                                                  |
| O IP65-3   | LH REAR AUDIO +                                                                         |
| O IP65-4   | LH REAR AUDIO -                                                                         |
| O IP65-5   | RH REAR AUDIO +                                                                         |
| O IP65-6   | RH REAR AUDIO -                                                                         |
| I IP65-7   | TELEPHONE MUTE SIGNAL                                                                   |
| O IP65-8   | SECURITY SYSTEM GROUND SENSING: GROUND WHEN AUDIO UNIT INSTALLED                        |
| S IP65-9   | SCP +                                                                                   |
| S IP65-10  | SCP -                                                                                   |
| B+ IP65-11 | BATTERY POWER SUPPLY: B+                                                                |
| O IP65-12  | AMPLIFIER ENABLE                                                                        |
| O IP65-13  | LH FRONT AUDIO -                                                                        |
| O IP65-14  | LH FRONT AUDIO +                                                                        |
| O IP65-15  | RH FRONT AUDIO -                                                                        |
| O IP65-16  | RH FRONT AUDIO +                                                                        |
| I IP65-17  | DIMMER CONTROLLED ILLUMINATION: PWM, 80Hz, GROUND = 0% DUTY CYCLE, B+ = 100% DUTY CYCLE |
| I IP65-18  | STEERING WHEEL SWITCHES: STEPPED RESISTANCE                                             |
| O IP65-19  | D2B NETWORK WAKE-UP                                                                     |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

Fig. 15.2

COMPONENTS

| Component                   | Connector(s)         | Connector Description                              | Location                |
|-----------------------------|----------------------|----------------------------------------------------|-------------------------|
| ANTENNA MODULE              | CA117                | —                                                  | BEHIND LH E POST TRIM   |
| AUDIO CONTROL SWITCHES      | SW4                  | 6-WAY / BLACK                                      | STEERING WHEEL          |
| AUDIO UNIT                  | ID1<br>IP65<br>IP106 | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL | INSTRUMENT PANEL CENTER |
| CD AUTOCHANGER              | CA301<br>CD2         | 3-WAY / BLACK<br>2-WAY / BLACK                     | TRUNK LH REAR           |
| HEATED REAR WINDOW          | ZA1<br>ZA10          | —                                                  | REAR WINDOW             |
| MID BASS SPEAKER – LH FRONT | FL6                  | 2-WAY / WHITE                                      | LH FRONT DOOR CASING    |
| MID BASS SPEAKER – LH REAR  | BL4                  | 2-WAY / WHITE                                      | LH REAR DOOR CASING     |
| MID BASS SPEAKER – RH FRONT | FR5                  | 2-WAY / WHITE                                      | RH FRONT DOOR CASING    |
| MID BASS SPEAKER – RH REAR  | BR4                  | 2-WAY / WHITE                                      | RH REAR DOOR CASING     |
| SUB WOOFER                  | CA124                | 14-WAY / GREY                                      | PARCEL SHELF            |
| TWEETER – LH FRONT          | FL8                  | 2-WAY / WHITE                                      | LH FRONT DOOR CASING    |
| TWEETER – LH REAR           | BL5                  | 2-WAY / WHITE                                      | LH REAR DOOR CASING     |
| TWEETER – RH FRONT          | FR8                  | 2-WAY / WHITE                                      | RH FRONT DOOR CASING    |
| TWEETER – RH REAR           | BR8                  | 2-WAY / WHITE                                      | RH REAR DOOR CASING     |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA16      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA21      | 20-WAY / BLACK / DOOR HARNESS TO CABIN HARNESS                   | DRIVER SIDE A POST               |
| CA25      | 14-WAY / NATURAL / REAR DOOR HARNESS TO CABIN HARNESS            | LH B/C POST                      |
| CA30      | 14-WAY / NATURAL / DOOR LOCK LINK LEAD                           | RH B/C POST                      |
| CA189     | 2-WAY / COAXIAL / AUDIO SYSTEM ANTENNA                           | LH LOWER A POST                  |
| CA230     | 16-WAY / BLUE / CABIN HARNESS TO INSTRUMENT PANEL HARNESS        | LH LOWER A POST                  |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |

GROUNDINGS

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G1     | TRUNK / LH REAR                                              |
| G2     | TRUNK / LH REAR                                              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM                    |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

**Fig. 16.1**

**Cellular Phone Control Module**

| Pin | Description and Characteristic                    |
|-----|---------------------------------------------------|
| O   | PH1-1 PHONE BATTERY CHARGING SUPPLY               |
| O   | PH1-3 PHONE ON / OFF (RESPONSE TO INCOMING AUDIO) |
| O   | PH1-4 MUTE COMMAND                                |
| —   | PH1-7 COMPUTER                                    |
| —   | PH1-8 COMPUTER                                    |
| PG  | PH1-9 POWER GROUND: GROUND                        |
| SG  | PH1-11 MICROPHONE SHIELD: GROUND                  |
| B+  | PH1-12 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-13 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-14 IGNITION SWITCHED POWER SUPPLY (I): B+     |
| I   | PH1-15 JaguarNet ASSISTANCE REQUEST               |
| O   | PH1-16 JaguarNet ASSISTANCE CALL INDICATOR        |
| I   | PH1-17 MICROPHONE +                               |
| I   | PH1-18 MICROPHONE -                               |
| D   | PH1-20 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-22 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| I   | PH1-23 D2B NETWORK WAKE-UP                        |
| —   | PH1-24 COMPUTER                                   |
| I   | PH1-25 POWER GROUND: GROUND                       |
| I   | PH1-26 TELEPHONE LOGIC GROUND: GROUND             |
| I   | PH1-29 IGNITION SWITCHED POWER SUPPLY (II): B+    |
| I   | PH1-30 AIRBAG DEPLOYED SIGNAL                     |
| I   | PH1-31 JaguarNet INFORMATION REQUEST              |
| O   | PH1-32 JaguarNet INFORMATION CALL INDICATOR       |
| D2  | CD3-1 D2B NETWORK RECEIVE                         |
| D2  | CD3-2 D2B NETWORK TRANSMIT                        |

**COMPONENTS**

| Component                          | Connector(s)                         | Connector Description                                                                  | Location                          |
|------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------|
| AUDIO UNIT                         | ID1<br>IP65<br>IP106                 | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                     | INSTRUMENT PANEL CENTER           |
| CELLULAR PHONE CONTROL MODULE      | CD3<br>PH1<br>PH3<br>PH5             | 2-WAY / BLACK<br>32-WAY / BLACK<br>2-WAY / COAXIAL<br>2-WAY / COAXIAL                  | TRUNK LH REAR                     |
| HANDESET RECEIVER (ROW)            | PP1                                  | —                                                                                      | CENTER CONSOLE                    |
| JaguarNet GPS ANTENNA              | PH5                                  | 2-WAY / COAXIAL                                                                        | BEHIND LH REAR QUARTER TRIM PANEL |
| NAVIGATION CONTROL MODULE          | CD5<br>NA1<br>NA2<br>NA6<br>NA7      | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR                     |
| ROOF CONSOLE                       | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK     | ROOF, CENTER FRONT                |
| TELEMATICS DISPLAY                 | IP70                                 | 22-WAY / BLACK                                                                         | CENTER CONSOLE                    |
| TELEPHONE ANTENNA, BUMPER (ROW)    | —                                    | —                                                                                      | REAR BUMPER                       |
| TELEPHONE ANTENNA, JaguarNet (ROW) | PH13                                 | 2-WAY / COAXIAL                                                                        | PARCEL SHELF                      |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                | RH LOWER A POST                       |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS               | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS   | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS            | BELOW LH REAR SEAT CUSHION            |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS          | BELOW LH REAR SEAT CUSHION            |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS           | BELOW LH REAR SEAT CUSHION            |
| PH11      | 10-WAY / GREY / CELLULAR TELEPHONE LINK LEAD                 | LH LOWER A POST                       |

**GROUNDS**

| Ground | Location                                |
|--------|-----------------------------------------|
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |
| G39    | TRUNK / LH REAR                         |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

Cellular Phone Control Module

| Pin | Description and Characteristic                    |
|-----|---------------------------------------------------|
| O   | PH1-1 PHONE BATTERY CHARGING SUPPLY               |
| O   | PH1-2 HANDS FREE AUDIO TO PHONE                   |
| O   | PH1-3 PHONE ON / OFF (RESPONSE TO INCOMING AUDIO) |
| O   | PH1-4 MUTE COMMAND                                |
| I   | PH1-5 MANUAL TEST DATA                            |
| I   | PH1-6 PHONE BATTERY VOLTAGE                       |
| PG  | PH1-9 POWER GROUND: GROUND                        |
| SG  | PH1-10 ANALOG GROUND: GROUND                      |
| SG  | PH1-11 MICROPHONE SHIELD: GROUND                  |
| B+  | PH1-12 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-13 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-14 IGNITION SWITCHED POWER SUPPLY (I): B+     |
| I   | PH1-15 JaguarNet ASSISTANCE REQUEST               |
| O   | PH1-16 JaguarNet ASSISTANCE CALL INDICATOR        |
| I   | PH1-17 MICROPHONE +                               |
| I   | PH1-18 MICROPHONE -                               |
| D   | PH1-20 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-21 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-22 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| I   | PH1-23 D2B NETWORK WAKE-UP                        |
| I   | PH1-25 POWER GROUND: GROUND                       |
| I   | PH1-26 TELEPHONE LOGIC GROUND: GROUND             |
| I   | PH1-29 IGNITION SWITCHED POWER SUPPLY (II): B+    |
| I   | PH1-30 AIRBAG DEPLOYED SIGNAL                     |
| I   | PH1-31 JaguarNet INFORMATION REQUEST              |
| O   | PH1-32 JaguarNet INFORMATION CALL INDICATOR       |
| D2  | CD3-1 D2B NETWORK RECEIVE                         |
| D2  | CD3-2 D2B NETWORK TRANSMIT                        |

COMPONENTS

| Component                          | Connector(s)                         | Connector Description                                                                  | Location                          |
|------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------|
| AUDIO UNIT                         | ID1<br>IP65<br>IP106                 | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                     | INSTRUMENT PANEL CENTER           |
| CELLULAR PHONE CONTROL MODULE      | CD3<br>PH1<br>PH3<br>PH5             | 2-WAY / BLACK<br>32-WAY / BLACK<br>2-WAY / COAXIAL<br>2-WAY / COAXIAL                  | TRUNK LH REAR                     |
| HANDSET RECEIVER (NAS)             | PH9<br>PH10                          | —<br>10-WAY / GREY                                                                     | LH A POST<br>LH A POST            |
| JaguarNet GPS ANTENNA              | PH5                                  | 2-WAY / COAXIAL                                                                        | BEHIND LH REAR QUARTER TRIM PANEL |
| NAVIGATION CONTROL MODULE          | CD5<br>NA1<br>NA2<br>NA6<br>NA7      | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR                     |
| ROOF CONSOLE                       | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK     | ROOF, CENTER FRONT                |
| TELEMATICS DISPLAY                 | IP70                                 | 22-WAY / BLACK                                                                         | CENTER CONSOLE                    |
| TELEPHONE ANTENNA, BUMPER (NAS)    | PH4                                  | 2-WAY                                                                                  | REAR BUMPER                       |
| TELEPHONE ANTENNA, JaguarNet (NAS) | PH12                                 | 2-WAY / COAXIAL                                                                        | PARCEL SHELF                      |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                | RH LOWER A POST                       |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS               | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS   | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS            | BELOW LH REAR SEAT CUSHION            |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS          | BELOW LH REAR SEAT CUSHION            |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS           | BELOW LH REAR SEAT CUSHION            |

GROUNDS

| Ground | Location                                |
|--------|-----------------------------------------|
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |
| G39    | TRUNK / LH REAR                         |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 16.3**

**Cellular Phone Control Module**

| Pin | Description and Characteristic                    |
|-----|---------------------------------------------------|
| O   | PH1-1 PHONE BATTERY CHARGING SUPPLY               |
| O   | PH1-3 PHONE ON / OFF (RESPONSE TO INCOMING AUDIO) |
| O   | PH1-4 MUTE COMMAND                                |
| —   | PH1-7 COMPUTER                                    |
| —   | PH1-8 COMPUTER                                    |
| PG  | PH1-9 POWER GROUND: GROUND                        |
| SG  | PH1-11 MICROPHONE SHIELD: GROUND                  |
| B+  | PH1-12 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-13 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-14 IGNITION SWITCHED POWER SUPPLY (II): B+    |
| I   | PH1-15 JaguarNet ASSISTANCE REQUEST               |
| O   | PH1-16 JaguarNet ASSISTANCE CALL INDICATOR        |
| I   | PH1-17 MICROPHONE +                               |
| I   | PH1-18 MICROPHONE -                               |
| D   | PH1-20 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-22 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| I   | PH1-23 D2B NETWORK WAKE-UP                        |
| —   | PH1-24 COMPUTER                                   |
| I   | PH1-25 POWER GROUND: GROUND                       |
| I   | PH1-26 TELEPHONE LOGIC GROUND: GROUND             |
| I   | PH1-29 IGNITION SWITCHED POWER SUPPLY (III): B+   |
| I   | PH1-30 AIRBAG DEPLOYED SIGNAL                     |
| I   | PH1-31 JaguarNet INFORMATION REQUEST              |
| O   | PH1-32 JaguarNet INFORMATION CALL INDICATOR       |
| D2  | CD3-1 D2B NETWORK RECEIVE                         |
| D2  | CD3-2 D2B NETWORK TRANSMIT                        |

**Voice Activation Control Module**

| Pin | Description and Characteristic                                  |
|-----|-----------------------------------------------------------------|
| I   | PH2-1 MICROPHONE +                                              |
| SG  | PH2-2 MICROPHONE SHIELD                                         |
| B+  | PH2-6 IGNITION SWITCHED POWER SUPPLY (III) (START / RUN STATUS) |
| B+  | PH2-8 IGNITION SWITCHED POWER SUPPLY (I)                        |
| PG  | PH2-11 POWER GROUND                                             |
| I   | PH2-12 MICROPHONE -                                             |
| O   | PH2-14 D2B NETWORK WAKE UP                                      |
| B+  | PH2-22 BATTERY POWER SUPPLY                                     |
| D2  | CD4-1 D2B NETWORK RECEIVE                                       |
| D2  | CD2-2 D2B NETWORK TRANSMIT                                      |

**COMPONENTS**

| Component                          | Connector(s) | Connector Description | Location                          |
|------------------------------------|--------------|-----------------------|-----------------------------------|
| AUDIO CONTROL SWITCHES             | SW4          | 6-WAY / BLACK         | STEERING WHEEL                    |
| AUDIO UNIT                         | ID1          | 2-WAY / BLACK         | INSTRUMENT PANEL CENTER           |
|                                    | IP65         | 20-WAY / BLACK        |                                   |
|                                    | IP106        | 2-WAY / COAXIAL       |                                   |
| CELLULAR PHONE CONTROL MODULE      | CD3          | 2-WAY / BLACK         | TRUNK LH REAR                     |
|                                    | PH1          | 32-WAY / BLACK        |                                   |
|                                    | PH3          | 2-WAY / COAXIAL       |                                   |
|                                    | PH5          | 2-WAY / COAXIAL       |                                   |
| HANDSET RECEIVER (ROW)             | PP1          | —                     | CENTER CONSOLE                    |
| JaguarNet GPS ANTENNA              | PH5          | 2-WAY / COAXIAL       | BEHIND LH REAR QUARTER TRIM PANEL |
| NAVIGATION CONTROL MODULE          | CD5          | 2-WAY / BLACK         | TRUNK LH REAR                     |
|                                    | NA1          | 26-WAY NATURAL        |                                   |
|                                    | NA2          | 12-WAY / BLACK        |                                   |
|                                    | NA6          | 2-WAY / COAXIAL       |                                   |
|                                    | NA7          | 20-WAY / BLACK        |                                   |
| ROOF CONSOLE                       | RC22         | 22-WAY / BLACK        | ROOF, CENTER FRONT                |
|                                    | RC30         | 4-WAY / BLACK         |                                   |
|                                    | RC31         | 2-WAY / BLACK         |                                   |
|                                    | RC33         | 4-WAY / BLACK         |                                   |
|                                    | RC34         | 6-WAY / BLACK         |                                   |
| TELEMATICS DISPLAY                 | IP70         | 22-WAY / BLACK        | CENTER CONSOLE                    |
|                                    | IP136        | 2-WAY                 |                                   |
|                                    | IP137        | 2-WAY                 |                                   |
|                                    | IP138        | 2-WAY                 |                                   |
|                                    | IP139        | 2-WAY                 |                                   |
| TELEPHONE ANTENNA, BUMPER (ROW)    | —            | —                     | REAR BUMPER                       |
| TELEPHONE ANTENNA, JaguarNet (ROW) | PH13         | 2-WAY / COAXIAL       | PARCEL SHELF                      |
| VOICE ACTIVATION CONTROL MODULE    | PH2          | 22-WAY / GREY         | TRUNK LH REAR                     |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                              |
|-----------|------------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS     | LH LOWER A POST                       |
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                    | RH LOWER A POST                       |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                   | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS       | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS                | BELOW LH REAR SEAT CUSHION            |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS              | BELOW LH REAR SEAT CUSHION            |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS               | BELOW LH REAR SEAT CUSHION            |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET      |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                       |
| PH11      | 10-WAY / GREY / CELLULAR TELEPHONE LINK LEAD                     | LH LOWER A POST                       |

**GROUNDS**

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST                      |
| G39    | TRUNK / LH REAR                                              |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Cellular Phone Control Module**

| Pin | Description and Characteristic                    |
|-----|---------------------------------------------------|
| O   | PH1-1 PHONE BATTERY CHARGING SUPPLY               |
| O   | PH1-2 HANDS FREE AUDIO TO PHONE                   |
| O   | PH1-3 PHONE ON / OFF (RESPONSE TO INCOMING AUDIO) |
| O   | PH1-4 MUTE COMMAND                                |
| I   | PH1-5 MANUAL TEST DATA                            |
| I   | PH1-6 PHONE BATTERY VOLTAGE                       |
| PG  | PH1-9 POWER GROUND: GROUND                        |
| SG  | PH1-10 ANALOG GROUND: GROUND                      |
| SG  | PH1-11 MICROPHONE SHIELD: GROUND                  |
| B+  | PH1-12 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-13 BATTERY POWER SUPPLY: B+                   |
| B+  | PH1-14 IGNITION SWITCHED POWER SUPPLY (I): B+     |
| I   | PH1-15 JaguarNet ASSISTANCE REQUEST               |
| O   | PH1-16 JaguarNet ASSISTANCE CALL INDICATOR        |
| I   | PH1-17 MICROPHONE +                               |
| I   | PH1-18 MICROPHONE -                               |
| D   | PH1-20 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-21 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| D   | PH1-22 TELEPHONE SERIAL COMMUNICATIONS DATA       |
| I   | PH1-23 D2B NETWORK WAKE-UP                        |
| I   | PH1-25 POWER GROUND: GROUND                       |
| I   | PH1-26 TELEPHONE LOGIC GROUND: GROUND             |
| I   | PH1-29 IGNITION SWITCHED POWER SUPPLY (II): B+    |
| I   | PH1-30 AIRBAG DEPLOYED SIGNAL                     |
| I   | PH1-31 JaguarNet INFORMATION REQUEST              |
| O   | PH1-32 JaguarNet INFORMATION CALL INDICATOR       |
| D2  | CD3-1 D2B NETWORK RECEIVE                         |
| D2  | CD3-2 D2B NETWORK TRANSMIT                        |

**Voice Activation Control Module**

| Pin | Description and Characteristic                                 |
|-----|----------------------------------------------------------------|
| I   | PH2-1 MICROPHONE +                                             |
| SG  | PH2-2 MICROPHONE SHIELD                                        |
| B+  | PH2-6 IGNITION SWITCHED POWER SUPPLY (II) (START / RUN STATUS) |
| B+  | PH2-8 IGNITION SWITCHED POWER SUPPLY (I)                       |
| PG  | PH2-11 POWER GROUND                                            |
| I   | PH2-12 MICROPHONE -                                            |
| O   | PH2-14 D2B NETWORK WAKE UP                                     |
| B+  | PH2-22 BATTERY POWER SUPPLY                                    |
| D2  | CD4-1 D2B NETWORK RECEIVE                                      |
| D2  | CD2-2 D2B NETWORK TRANSMIT                                     |

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

**COMPONENTS**

| Component                          | Connector(s)                             | Connector Description                                                                  | Location                          |
|------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------|
| AUDIO CONTROL SWITCHES             | SW4                                      | 6-WAY / BLACK                                                                          | STEERING WHEEL                    |
| AUDIO UNIT                         | ID1<br>IP65<br>IP106                     | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                     | INSTRUMENT PANEL CENTER           |
| CELLULAR PHONE CONTROL MODULE      | CD3<br>PH1<br>PH3<br>PH5                 | 2-WAY / BLACK<br>32-WAY / BLACK<br>2-WAY / COAXIAL<br>2-WAY / COAXIAL                  | TRUNK LH REAR                     |
| HANDSET RECEIVER (NAS)             | PH9<br>PH10                              | —<br>10-WAY / GREY                                                                     | LH A POST<br>LH A POST            |
| JaguarNet GPS ANTENNA              | PH5                                      | 2-WAY / COAXIAL                                                                        | BEHIND LH REAR QUARTER TRIM PANEL |
| NAVIGATION CONTROL MODULE          | CD5<br>NA1<br>NA2<br>NA6<br>NA7          | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR                     |
| ROOF CONSOLE                       | RC22<br>RC30<br>RC31<br>RC33<br>RC34     | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK     | ROOF, CENTER FRONT                |
| TELEMATICS DISPLAY                 | IP70<br>IP136<br>IP137<br>IP138<br>IP139 | 22-WAY / BLACK<br>2-WAY<br>2-WAY<br>2-WAY<br>2-WAY                                     | CENTER CONSOLE                    |
| TELEPHONE ANTENNA, BUMPER (NAS)    | PH4                                      | 2-WAY                                                                                  | REAR BUMPER                       |
| TELEPHONE ANTENNA, JaguarNet (NAS) | PH12                                     | 2-WAY / COAXIAL                                                                        | PARCEL SHELF                      |
| VOICE ACTIVATION CONTROL MODULE    | PH2                                      | 22-WAY / GREY                                                                          | TRUNK LH REAR                     |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                                        | Location                              |
|-----------|--------------------------------------------------------------|---------------------------------------|
| CA1       | 22-WAY / NATURAL / CABIN HARNESS TO INSTRUMENT PANEL HARNESS | LH LOWER A POST                       |
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                | RH LOWER A POST                       |
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS               | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS   | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS            | BELOW LH REAR SEAT CUSHION            |
| CA407     | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS          | BELOW LH REAR SEAT CUSHION            |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS           | BELOW LH REAR SEAT CUSHION            |

**GROUND**

| Ground | Location                                |
|--------|-----------------------------------------|
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST |
| G39    | TRUNK / LH REAR                         |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

Voice Activation Control Module

| Pin       | Description and Characteristic                           |
|-----------|----------------------------------------------------------|
| I PH2-1   | MICROPHONE +                                             |
| SG PH2-2  | MICROPHONE SHIELD                                        |
| B+ PH2-6  | IGNITION SWITCHED POWER SUPPLY (II) (START / RUN STATUS) |
| B+ PH2-8  | IGNITION SWITCHED POWER SUPPLY (I)                       |
| PG PH2-11 | POWER GROUND                                             |
| I PH2-12  | MICROPHONE -                                             |
| O PH2-14  | D2B NETWORK WAKE UP                                      |
| B+ PH2-22 | BATTERY POWER SUPPLY                                     |
| D2 CD4-1  | D2B NETWORK RECEIVE                                      |
| D2 CD2-2  | D2B NETWORK TRANSMIT                                     |

COMPONENTS

| Component                       | Connector(s)                         | Connector Description                                                              | Location                |
|---------------------------------|--------------------------------------|------------------------------------------------------------------------------------|-------------------------|
| AUDIO CONTROL SWITCHES          | SW4                                  | 6-WAY / BLACK                                                                      | STEERING WHEEL          |
| AUDIO UNIT                      | ID1<br>IP65<br>IP106                 | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                 | INSTRUMENT PANEL CENTER |
| ROOF CONSOLE                    | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK | ROOF, CENTER FRONT      |
| VOICE ACTIVATION CONTROL MODULE | PH2                                  | 22-WAY / GREY                                                                      | TRUNK LH REAR           |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                            | Location                         |
|-----------|------------------------------------------------------------------|----------------------------------|
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                    | RH LOWER A POST                  |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS                | BELOW LH REAR SEAT CUSHION       |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS          | ADJACENT TO LH SUSPENSION TURRET |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST                  |

GROUND

| Ground | Location                                                     |
|--------|--------------------------------------------------------------|
| G1     | TRUNK / LH REAR                                              |
| G14    | ENGINE COMPARTMENT / REARWARD OF POWER DISTRIBUTION FUSE BOX |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 16.6****COMPONENTS**

| <b>Component</b>              | <b>Connector(s)</b>                      | <b>Connector Description</b>                                                           | <b>Location</b>             |
|-------------------------------|------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------|
| NAVIGATION CONTROL MODULE     | CD5<br>NA1<br>NA2<br>NA6<br>NA7          | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR               |
| NAVIGATION GPS ANTENNA        | NA12                                     | 2-WAY / COAXIAL                                                                        | BELOW PARCEL SHELF, LH SIDE |
| TELEMATICS DISPLAY            | IP70<br>IP136<br>IP137<br>IP138<br>IP139 | 22-WAY / BLACK<br>2-WAY<br>2-WAY<br>2-WAY<br>2-WAY                                     | CENTER CONSOLE              |
| TRAFFIC MASTER CONTROL MODULE | NA15                                     | 5-WAY / GREEN                                                                          | TRUNK LH REAR               |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                                    | <b>Location</b>                |
|------------------|-----------------------------------------------------------------|--------------------------------|
| NA24             | 16-WAY / GREEN / NAVIGATION HARNESS TO INSTRUMENT PANEL HARNESS | BELOW INSTRUMENT PANEL LH SIDE |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                           |
|---------------|-------------------------------------------|
| G37           | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G40           | TRUNK / LH REAR                           |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.



**Fig. 16.7****COMPONENTS**

| Component                                 | Connector(s) | Connector Description | Location                        |
|-------------------------------------------|--------------|-----------------------|---------------------------------|
| NAVIGATION CONTROL MODULE                 | CD5          | 2-WAY / BLACK         | TRUNK LH REAR                   |
|                                           | NA1          | 26-WAY NATURAL        |                                 |
|                                           | NA2          | 12-WAY / BLACK        |                                 |
|                                           | NA6          | 2-WAY / COAXIAL       |                                 |
|                                           | NA7          | 20-WAY / BLACK        |                                 |
| NAVIGATION GPS ANTENNA                    | NA12         | 2-WAY / COAXIAL       | BELOW PARCEL SHELF, LH SIDE     |
| ROOF CONSOLE                              | RC22         | 22-WAY / BLACK        | ROOF, CENTER FRONT              |
|                                           | RC30         | 4-WAY / BLACK         |                                 |
|                                           | RC31         | 2-WAY / BLACK         |                                 |
|                                           | RC33         | 4-WAY / BLACK         |                                 |
|                                           | RC34         | 6-WAY / BLACK         |                                 |
| TELEMATICS DISPLAY                        | IP70         | 22-WAY / BLACK        | CENTER CONSOLE                  |
|                                           | IP136        | 2-WAY                 |                                 |
|                                           | IP137        | 2-WAY                 |                                 |
|                                           | IP138        | 2-WAY                 |                                 |
|                                           | IP139        | 2-WAY                 |                                 |
| TELEVISION ANTENNA AND AMPLIFIER 1        | NA20         | 2-WAY                 | TELEVISION ANTENNA              |
| TELEVISION ANTENNA AND AMPLIFIER 2        | NA21         | 2-WAY                 | TELEVISION ANTENNA              |
| TELEVISION ANTENNA AND AMPLIFIER 3        | NA22         | 2-WAY                 | TELEVISION ANTENNA              |
| TELEVISION ANTENNA AND AMPLIFIER 4        | NA23         | 2-WAY                 | TELEVISION ANTENNA              |
| VEHICLE INFORMATION ANTENNA AND AMPLIFIER | NA11         | 2-WAY                 | BEHIND RH E POST                |
| VEHICLE INFORMATION CONTROL MODULE        | NA9          | 10-WAY / NATURAL      | TRUNK LH REAR                   |
| VEHICLE INFORMATION SENSOR                | CA222        | 2-WAY                 | TOP OF INSTRUMENT PANEL LH SIDE |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location                        |
|-----------|------------------------------------------------------------------|---------------------------------|
| CA35      | 10-WAY / GREY / CABIN HARNESS TO ROOF HARNESS                    | RH LOWER A POST                 |
| CA406     | 3-WAY / GREY / TELEPHONE HARNESS TO CABIN HARNESS                | BELOW LH REAR SEAT CUSHION      |
| NA24      | 16-WAY / GREEN / NAVIGATION HARNESS TO INSTRUMENT PANEL HARNESS  | BELOW INSTRUMENT PANEL LH SIDE  |
| NA25      | 8-WAY / COAXIAL / INSTRUMENT PANEL HARNESS TO NAVIGATION HARNESS | BELOW CENTRAL JUNCTION FUSE BOX |

**GROUNDS**

| Ground | Location                                  |
|--------|-------------------------------------------|
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |
| G40    | TRUNK / LH REAR                           |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 17.1****COMPONENTS**

| <b>Component</b>                               | <b>Connector(s)</b> | <b>Connector Description</b>   | <b>Location</b>                                          |
|------------------------------------------------|---------------------|--------------------------------|----------------------------------------------------------|
| AIRBAG DEACTIVATED INDICATOR LAMP – PASSENGER  | IP140               | 3-WAY / BLACK                  | PASSENGER AIRBAG COVER                                   |
| CURTAIN AIRBAG IGNITER – DRIVER                | CA144               | 2-WAY / BLACK                  | DRIVER SIDE E POST                                       |
| CURTAIN AIRBAG IGNITER – PASSENGER             | CA145               | 2-WAY / BLACK                  | PASSENGER SIDE E POST                                    |
| DUAL AIRBAG IGNITER – DRIVER                   | SW1<br>SW2          | 2-WAY / BLACK<br>2-WAY / BLACK | STEERING WHEEL                                           |
| DUAL AIRBAG IGNITER – PASSENGER                | IP36<br>IP37        | 2-WAY / BROWN<br>2-WAY / BLACK | INSTRUMENT PANEL PASSENGER SIDE                          |
| FRONT IMPACT SENSOR                            | JB93                | 2-WAY / BLACK                  | ADJACENT TO HOOD CATCH                                   |
| SEAT BELT PRETENSIONER IGNITER – DRIVER        | CA65                | 18-WAY / BLACK                 | DRIVER SIDE B/C POST                                     |
| SEAT BELT PRETENSIONER IGNITER – PASSENGER     | CA70                | 18-WAY / BLACK                 | PASSENGER SIDE B/C POST                                  |
| SEAT BELT SWITCH – DRIVER                      | CA65                | 18-WAY / BLACK                 | DRIVER SEAT BELT                                         |
| SEAT BELT SWITCH – PASSENGER                   | CA70                | 18-WAY / BLACK                 | PASSENGER SEAT BELT                                      |
| SEAT POSITION SWITCH – DRIVER                  | CA65                | 18-WAY / BLACK                 | DRIVER SEAT TRACK                                        |
| SEAT WEIGHT PRESSURE SENSOR – PASSENGER        | WS18                | 3-WAY                          | UNDER PASSENGER SEAT                                     |
| SEAT WEIGHT SENSING CONTROL MODULE – PASSENGER | WS17                | 12-WAY                         | UNDER PASSENGER SEAT                                     |
| SIDE AIRBAG IGNITER – DRIVER                   | AL1                 | 2-WAY / BLACK                  | DRIVER SEAT BACK                                         |
| SIDE AIRBAG IGNITER – PASSENGER                | AD1                 | 2-WAY / BLACK                  | INSTRUMENT PANEL PASSENGER SIDE                          |
| SIDE IMPACT SENSOR – DRIVER                    | CA215               | 2-WAY / BLACK                  | DRIVER SIDE LOWER B/C POST                               |
| SIDE IMPACT SENSOR – DRIVER REAR               | CA140               | 2-WAY / BLACK                  | ADJACENT TO DRIVER SIDE REAR LOWER SAFETY BELT ANCHOR    |
| SIDE IMPACT SENSOR – PASSENGER                 | CA216               | 2-WAY / BLACK                  | DRIVER SIDE LOWER B/C POST                               |
| SIDE IMPACT SENSOR – PASSENGER REAR            | CA131               | 2-WAY / BLACK                  | ADJACENT TO PASSENGER SIDE REAR LOWER SAFETY BELT ANCHOR |

**HARNES IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                    | <b>Location</b>     |
|------------------|-------------------------------------------------|---------------------|
| CA10             | 22-WAY / GREY / ENGINE HARNESS TO CABIN HARNESS | BELOW THE GLOVEBOX  |
| CA70             | 18-WAY / BLACK / CABIN HARNESS TO SEAT HARNESS  | BELOW LH FRONT SEAT |

**GROUNDS**

| <b>Ground</b> | <b>Location</b>                           |
|---------------|-------------------------------------------|
| G4            | PASSENGER COMPARTMENT / RH LOWER A POST   |
| G15           | PASSENGER COMPARTMENT / LH LOWER A POST   |
| G37           | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

CONTROL MODULE PIN-OUT INFORMATION

Control Module

| Pin | Description and Characteristic                             |
|-----|------------------------------------------------------------|
| B+  | RB7-1 IGNITION SWITCHED POWER SUPPLY: B+                   |
| PG  | RB7-3 POWER GROUND: GROUND                                 |
| D   | RB7-5 SERIAL DATA LINK                                     |
| I   | RB7-8 TRAILER CONNECTED STATUS: GROUND = TRAILER CONNECTED |
| I   | RB7-9 REVERSE LAMPS STATUS: B+ = REVERSE LAMPS ON          |
| D   | RB7-10 LH CENTER SENSOR SIGNAL DATA                        |
| D   | RB7-11 LH SENSOR SIGNAL DATA                               |
| O   | RB7-14 PARKING AID SOUNDER +                               |
| O   | RB7-15 SENSOR POWER SUPPLY: B+                             |
| O   | RB7-16 SENSOR GROUND: GROUND                               |
| O   | RB7-17 PARKING AID SOUNDER                                 |
| D   | RB7-23 RH CENTER SENSOR SIGNAL DATA                        |
| D   | RB7-24 RH SENSOR SIGNAL DATA                               |

Fig. 18.1

COMPONENTS

| Component                      | Connector(s) | Connector Description | Location         |
|--------------------------------|--------------|-----------------------|------------------|
| PARKING AID CONTROL MODULE     | RB7          | 26-WAY / YELLOW       | SPARE WHEEL WELL |
| PARKING AID SENSOR – LH        | RB1          | 3-WAY / BLACK         | REAR BUMPER      |
| PARKING AID SENSOR – LH CENTER | RB2          | 3-WAY / BLACK         | REAR BUMPER      |
| PARKING AID SENSOR – RH        | RB4          | 3-WAY / BLACK         | REAR BUMPER      |
| PARKING AID SENSOR – RH CENTER | RB3          | 3-WAY / BLACK         | REAR BUMPER      |
| PARKING AID SOUNDER            | CA136        | 2-WAY / WHITE         | PARCEL SHELF     |

HARNESS IN-LINE CONNECTORS

| Connector | Connector Description                                | Location         |
|-----------|------------------------------------------------------|------------------|
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS | SPARE WHEEL WELL |

GROUNDS

| Ground | Location        |
|--------|-----------------|
| G2     | TRUNK / LH REAR |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 19.1**

**General Electronic Control Module**

| Pin | Description and Characteristic                                         |
|-----|------------------------------------------------------------------------|
| PG  | CA86-5 POWER GROUND: GROUND                                            |
| O   | IP5-14 HORN RELAY DRIVE : TO ACTIVATE, GEEM SWITCHES CIRCUIT TO GROUND |
| I   | IP6-20 STEERING WHEEL HORN SWITCH: GROUND WHEN SELECTED                |
| B+  | JB172-1 BATTERY POWER SUPPLY (LOCKING): B+                             |

**COMPONENTS**

| Component                         | Connector(s)                         | Connector Description                                                                | Location                        |
|-----------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| CABIN ACCESSORY CONNECTOR         | IP24                                 | 3-WAY / BLACK                                                                        | BEHIND GLOVE BOX                |
| CIGAR LIGHTER                     | IP42                                 | 2-WAY / ORANGE                                                                       | ASH TRAY                        |
| GENERAL ELECTRONIC CONTROL MODULE | CA86<br>CA87<br>IP5<br>IP6<br>JB172  | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / WHITE<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL RH SIDE |
| HORN RELAY                        | —                                    | —                                                                                    | POWER DISTRIBUTION FUSE BOX R3  |
| HORN SWITCH                       | SW6                                  | 2-WAY / BLACK                                                                        | STEERING WHEEL                  |
| HORNS                             | JB87                                 | 2-WAY / BLACK                                                                        | ADJACENT TO BATTERY             |
| POWER DISTRIBUTION FUSE BOX       | —                                    | —                                                                                    | ENGINE COMPARTMENT LH SIDE      |
| ROOF CONSOLE                      | RC22<br>RC30<br>RC31<br>RC33<br>RC34 | 22-WAY / BLACK<br>4-WAY / BLACK<br>2-WAY / BLACK<br>4-WAY / BLACK<br>6-WAY / BLACK   | ROOF, CENTER FRONT              |
| TRUNK ACCESSORY CONNECTOR         | CA146                                | 3-WAY / BLACK                                                                        | TRUNK LH REAR                   |

**HARNES IN-LINE CONNECTORS**

| Connector | Connector Description                                            | Location        |
|-----------|------------------------------------------------------------------|-----------------|
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                   | LH LOWER A POST |
| JB129     | 22-WAY / GREY / INSTRUMENT PANEL HARNESS TO JUNCTION BOX HARNESS | LH LOWER A POST |

**GROUNDS**

| Ground | Location                                        |
|--------|-------------------------------------------------|
| G1     | TRUNK / LH REAR                                 |
| G4     | PASSENGER COMPARTMENT / RH LOWER A POST         |
| G5     | PASSENGER COMPARTMENT / RH LOWER A POST         |
| G11    | ENGINE COMPARTMENT / UNDER LH HEADLAMP ASSEMBLY |
| G15    | PASSENGER COMPARTMENT / LH LOWER A POST         |
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM       |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM       |

FOR CONTROL MODULE PIN-OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |     |             |     |                         |
|----|-----------------|----|--------------------------|-----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | CAN | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | SCP | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2  | D2B Network | PWM | Pulse Width Modulated   |

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The characteristics listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 20.1****COMPONENTS**

| Component                                           | Connector(s)                  | Connector Description                                              | Location                                   |
|-----------------------------------------------------|-------------------------------|--------------------------------------------------------------------|--------------------------------------------|
| ANTI-LOCK BRAKING SYSTEM CONTROL MODULE             | JB45                          | 42-WAY / BROWN                                                     | ENGINE COMPARTMENT RH SIDE                 |
| ANTI-LOCK BRAKING / TRACTION CONTROL CONTROL MODULE | JB197                         | 42-WAY / BROWN                                                     | ENGINE COMPARTMENT RH SIDE                 |
| AIR CONDITIONING CONTROL MODULE (MANUAL, PANEL)     | AC1<br>IP39<br>IP101<br>IP135 | 26-WAY / YELLOW<br>6-WAY / GREY<br>26-WAY / YELLOW<br>2-WAY / GREY | BEHIND CLIMATE CONTROL PANEL               |
| AIR CONDITIONING CONTROL MODULE (AUTOMATIC, PANEL)  | AC1<br>IP101                  | 26-WAY / YELLOW<br>26-WAY / YELLOW                                 | BEHIND CLIMATE CONTROL PANEL               |
| AIR CONDITIONING CONTROL MODULE (REMOTE)            | AC1<br>IP101                  | 26-WAY / YELLOW<br>26-WAY / YELLOW                                 | RH SIDE OF AIR DISTRIBUTION UNIT           |
| DATA LINK CONNECTOR                                 | IP22                          | 16-WAY / BLACK                                                     | BELOW STEERING COLUMN                      |
| ENGINE CONTROL MODULE (2.0L)                        | EN65                          | 104-WAY / BLACK                                                    | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| ENGINE CONTROL MODULE (2.5L & 3.0L)                 | EN16                          | 134-WAY / BLACK                                                    | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| HEADLAMP LEVELING CONTROL MODULE                    | IP130                         | 26-WAY / YELLOW                                                    | BEHIND INSTRUMENT PANEL LH SIDE            |
| INSTRUMENT CLUSTER                                  | IP10<br>IP11                  | 26-WAY / YELLOW<br>26-WAY / YELLOW                                 | INSTRUMENT PANEL                           |
| J GATE ASSEMBLY                                     | IP14                          | 16-WAY / GREEN                                                     | CENTER CONSOLE                             |
| STEERING ANGLE SENSOR                               | IP19                          | 4-WAY / BLACK                                                      | STEERING COLUMN                            |
| TRANSMISSION CONTROL MODULE                         | JB131                         | 37-WAY / BLUE                                                      | LOWER LH A POST                            |
| YAW RATE SENSOR                                     | IP20                          | 4-WAY / BLACK                                                      | BEHIND CENTER CONSOLE                      |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUNDS**

| Ground | Location                                  |
|--------|-------------------------------------------|
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 20.2****COMPONENTS**

| Component                           | Connector(s) | Connector Description | Location                                   |
|-------------------------------------|--------------|-----------------------|--------------------------------------------|
| AUDIO UNIT                          | ID1          | 2-WAY / BLACK         | INSTRUMENT PANEL CENTER                    |
|                                     | IP65         | 20-WAY / BLACK        |                                            |
|                                     | IP106        | 2-WAY / COAXIAL       |                                            |
| DATA LINK CONNECTOR                 | IP22         | 16-WAY / BLACK        | BELOW STEERING COLUMN                      |
| ENGINE CONTROL MODULE (2.0L)        | EN65         | 104-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| ENGINE CONTROL MODULE (2.5L & 3.0L) | EN16         | 134-WAY / BLACK       | ENGINE COMPARTMENT, FRONT BULKHEAD RH SIDE |
| GENERAL ELECTRONIC CONTROL MODULE   | CA86         | 23-WAY / GREY         | BEHIND INSTRUMENT PANEL RH SIDE            |
|                                     | CA87         | 23-WAY / GREEN        |                                            |
|                                     | IP5          | 23-WAY / BROWN        |                                            |
|                                     | IP6          | 23-WAY / WHITE        |                                            |
|                                     | JB172        | 23-WAY / BLUE         |                                            |
|                                     | IP130        | 26-WAY / YELLOW       |                                            |
| HEADLAMP LEVELING CONTROL MODULE    | IP10         | 26-WAY / YELLOW       | BEHIND INSTRUMENT PANEL LH SIDE            |
| INSTRUMENT CLUSTER                  | IP11         | 26-WAY / YELLOW       | INSTRUMENT PANEL                           |
|                                     | CD5          | 2-WAY / BLACK         |                                            |
|                                     | NA1          | 26-WAY NATURAL        |                                            |
| NAVIGATION CONTROL MODULE           | NA2          | 12-WAY / BLACK        | TRUNK LH REAR                              |
|                                     | NA6          | 2-WAY / COAXIAL       |                                            |
|                                     | NA7          | 20-WAY / BLACK        |                                            |
|                                     | RB7          | 26-WAY / YELLOW       |                                            |
| PARKING AID CONTROL MODULE          | CA165        | 40-WAY / BLACK        | SPARE WHEEL WELL                           |
| RESTRAINTS CONTROL MODULE           | IP74         | 24-WAY / BLACK        | UNDER CENTER CONSOLE                       |
|                                     | RC22         | 22-WAY / BLACK        |                                            |
| ROOF CONSOLE                        | RC30         | 4-WAY / BLACK         | ROOF, CENTER FRONT                         |
|                                     | RC31         | 2-WAY / BLACK         |                                            |
|                                     | RC33         | 4-WAY / BLACK         |                                            |
|                                     | RC34         | 6-WAY / BLACK         |                                            |

**HARNESS IN-LINE CONNECTORS**

| Connector | Connector Description                                             | Location                              |
|-----------|-------------------------------------------------------------------|---------------------------------------|
| CA36      | 16-WAY / GREEN / CABIN HARNESS TO ROOF HARNESS                    | LH LOWER A POST                       |
| CA129     | 12-WAY / GREY / CABIN HARNESS TO REAR BUMPER HARNESS              | SPARE WHEEL WELL                      |
| CA230     | 16-WAY / BLUE / CABIN HARNESS TO INSTRUMENT PANEL HARNESS         | LH LOWER A POST                       |
| CA241     | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS        | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA414     | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS                | BELOW LH REAR SEAT CUSHION            |
| JB1       | 42-WAY / BLACK / JUNCTION BOX HARNESS TO ENGINE HARNESS           | ADJACENT TO LH SUSPENSION TURRET      |
| JB130     | 22-WAY / GREEN / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |

**GROUNDS**

| Ground | Location                                  |
|--------|-------------------------------------------|
| G36    | PASSENGER COMPARTMENT / RH CROSS CAR BEAM |
| G37    | PASSENGER COMPARTMENT / LH CROSS CAR BEAM |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 20.3****COMPONENTS**

| <b>Component</b>                | <b>Connector(s)</b>             | <b>Connector Description</b>                                                           | <b>Location</b>         |
|---------------------------------|---------------------------------|----------------------------------------------------------------------------------------|-------------------------|
| AUDIO UNIT                      | ID1<br>IP65<br>IP106            | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                     | INSTRUMENT PANEL CENTER |
| CD AUTOCHANGER                  | CA301<br>CD2                    | 3-WAY / BLACK<br>2-WAY / BLACK                                                         | TRUNK LH REAR           |
| CELLULAR PHONE CONTROL MODULE   | CD3<br>PH1<br>PH3<br>PH5        | 2-WAY / BLACK<br>32-WAY / BLACK<br>2-WAY / COAXIAL<br>2-WAY / COAXIAL                  | TRUNK LH REAR           |
| NAVIGATION CONTROL MODULE       | CD5<br>NA1<br>NA2<br>NA6<br>NA7 | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR           |
| VOICE ACTIVATION CONTROL MODULE | PH2                             | 22-WAY / GREY                                                                          | TRUNK LH REAR           |

**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>                               | <b>Location</b>                       |
|------------------|------------------------------------------------------------|---------------------------------------|
| CA241            | 22-WAY / GREEN / INSTRUMENT PANEL HARNESS TO CABIN HARNESS | ADJACENT TO CENTRAL JUNCTION FUSE BOX |
| CA407            | 16-WAY / GREEN / TELEPHONE HARNESS TO CABIN HARNESS        | BELOW LH REAR SEAT CUSHION            |
| CA414            | 16-WAY / BLUE / TELEPHONE HARNESS TO CABIN HARNESS         | BELOW LH REAR SEAT CUSHION            |
| CD1              | 2-WAY / BLACK / FIBER OPTIC CONNECTOR                      | LH LOWER A POST                       |
| CD6              | 2-WAY / BLACK / FIBER OPTIC CONNECTOR                      | TRUNK LH REAR                         |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

**Fig. 20.4****COMPONENTS**

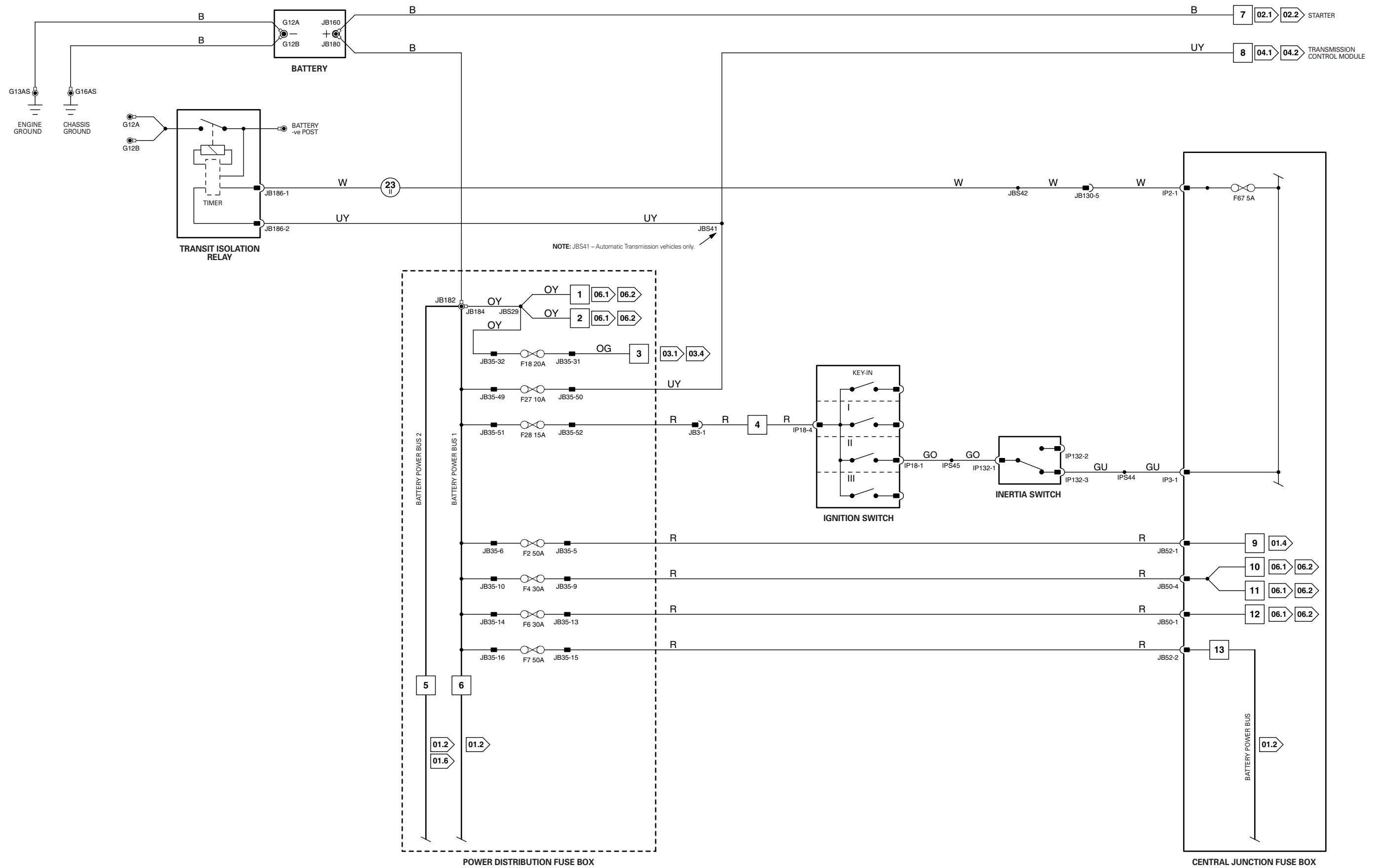
| <b>Component</b>                | <b>Connector(s)</b>             | <b>Connector Description</b>                                                           | <b>Location</b>         |
|---------------------------------|---------------------------------|----------------------------------------------------------------------------------------|-------------------------|
| AUDIO UNIT                      | ID1<br>IP65<br>IP106            | 2-WAY / BLACK<br>20-WAY / BLACK<br>2-WAY / COAXIAL                                     | INSTRUMENT PANEL CENTER |
| CD AUTOCHANGER                  | CA301<br>CD2                    | 3-WAY / BLACK<br>2-WAY / BLACK                                                         | TRUNK LH REAR           |
| CELLULAR PHONE CONTROL MODULE   | CD3<br>PH1<br>PH3<br>PH5        | 2-WAY / BLACK<br>32-WAY / BLACK<br>2-WAY / COAXIAL<br>2-WAY / COAXIAL                  | TRUNK LH REAR           |
| NAVIGATION CONTROL MODULE       | CD5<br>NA1<br>NA2<br>NA6<br>NA7 | 2-WAY / BLACK<br>26-WAY NATURAL<br>12-WAY / BLACK<br>2-WAY / COAXIAL<br>20-WAY / BLACK | TRUNK LH REAR           |
| VOICE ACTIVATION CONTROL MODULE | PH2                             | 22-WAY / GREY                                                                          | TRUNK LH REAR           |

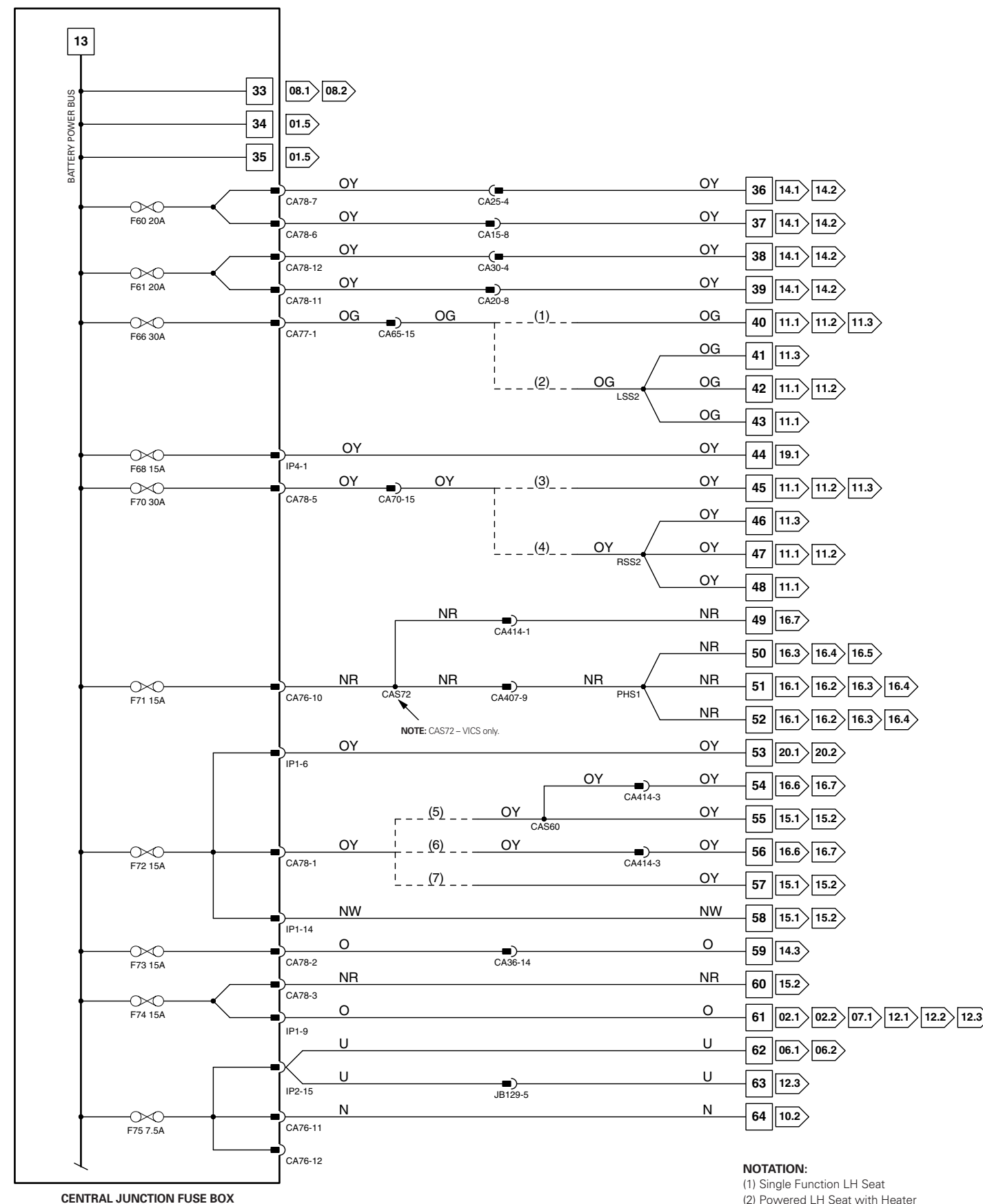
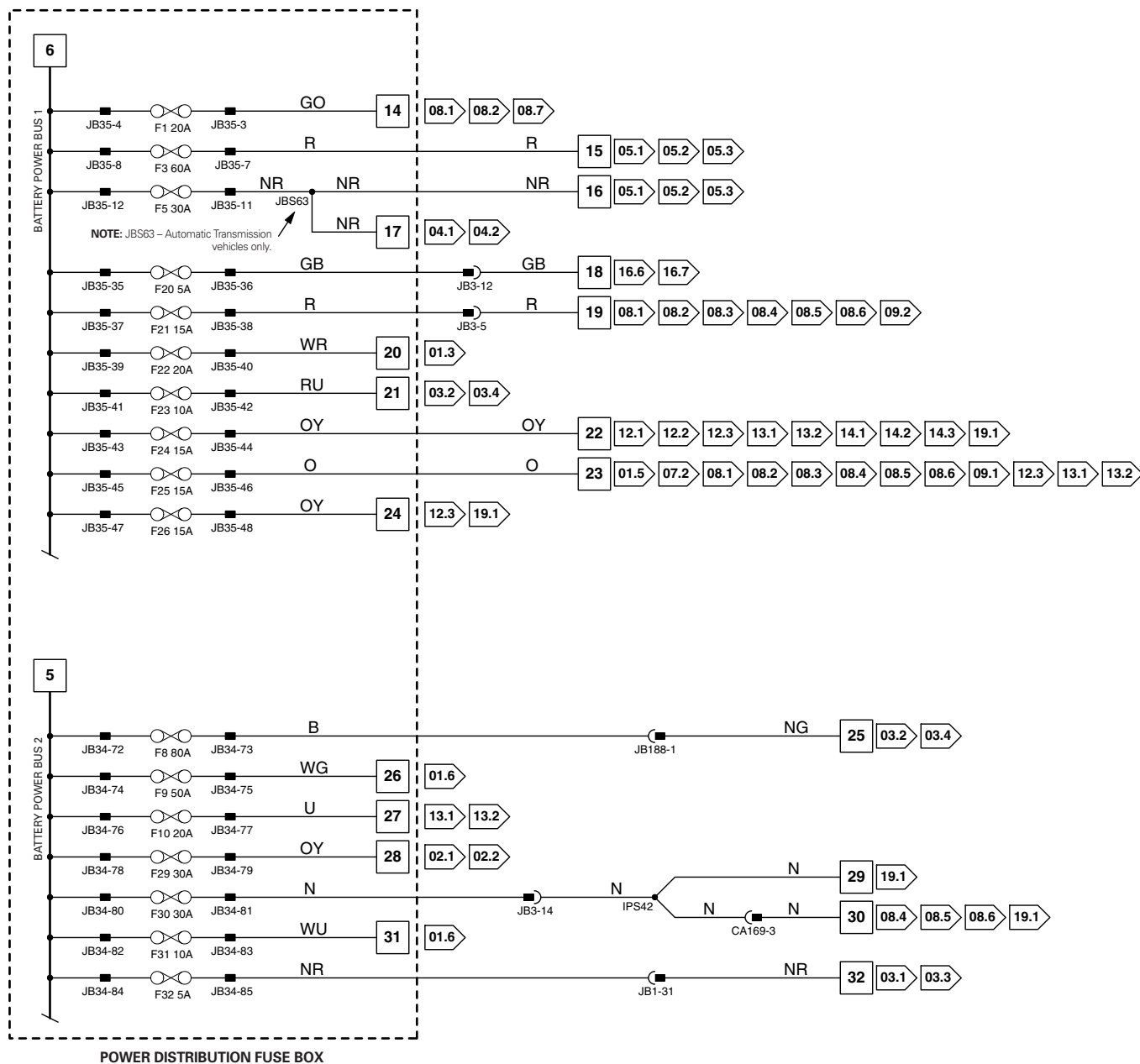
**HARNESS IN-LINE CONNECTORS**

| <b>Connector</b> | <b>Connector Description</b>          | <b>Location</b> |
|------------------|---------------------------------------|-----------------|
| CD1              | 2-WAY / BLACK / FIBER OPTIC CONNECTOR | LH LOWER A POST |
| CD6              | 2-WAY / BLACK / FIBER OPTIC CONNECTOR | TRUNK LH REAR   |

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, fuses, grounds, control modules and control module pins.

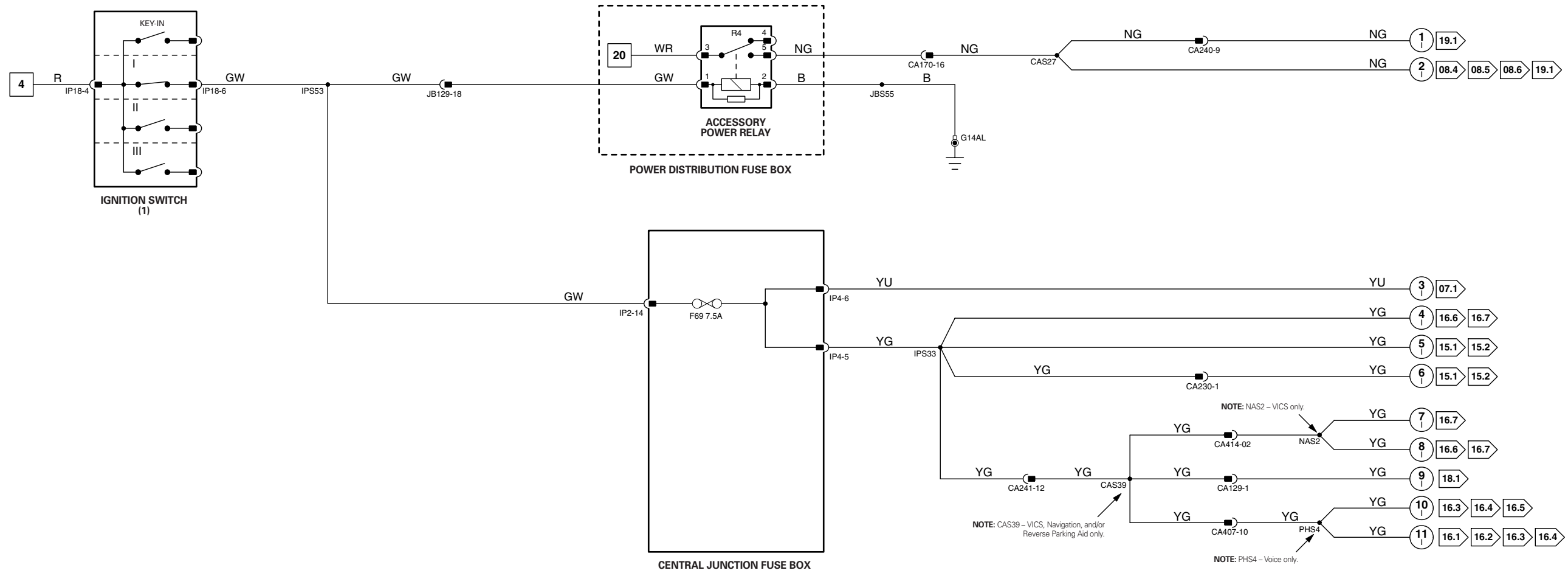


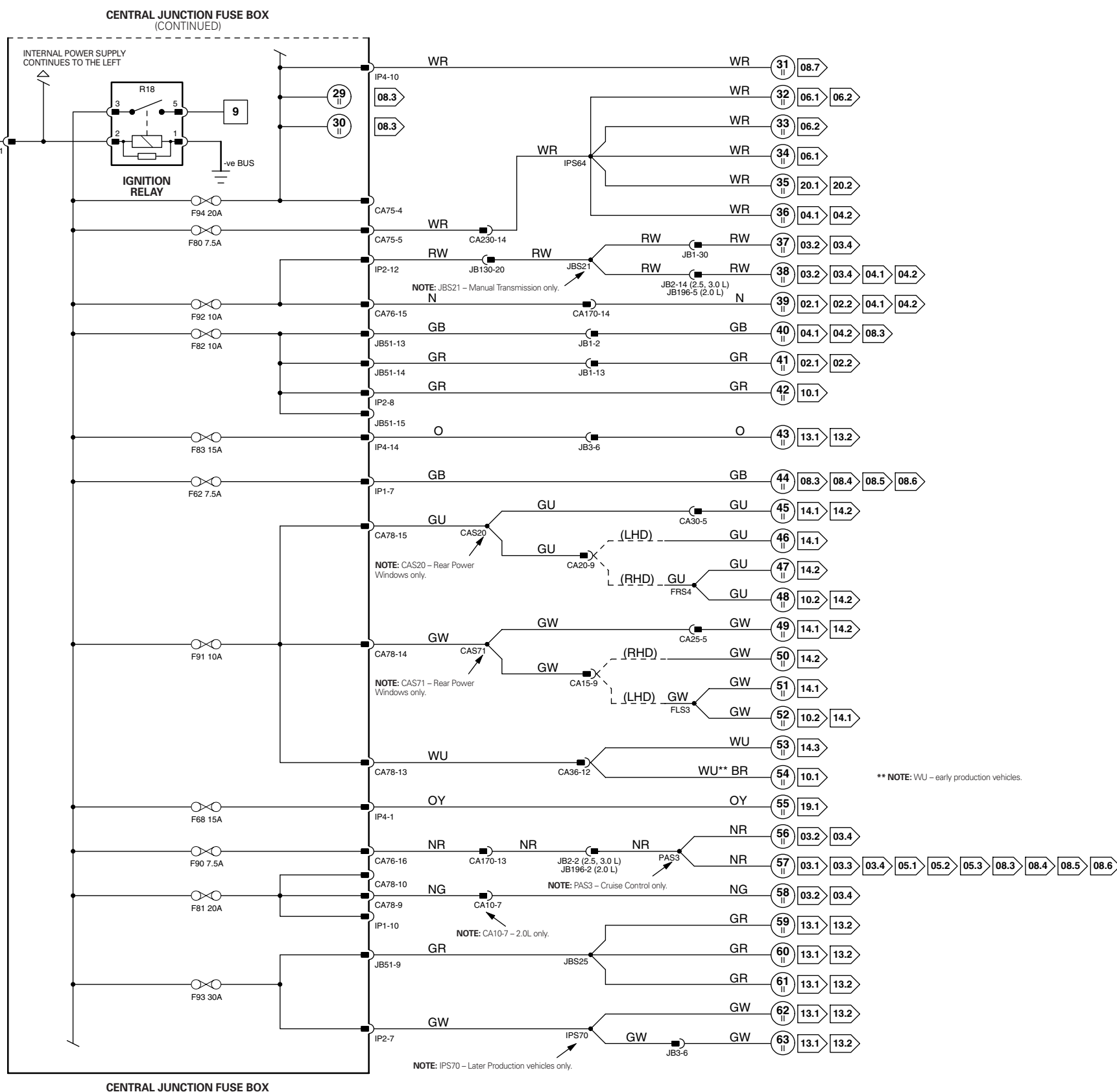
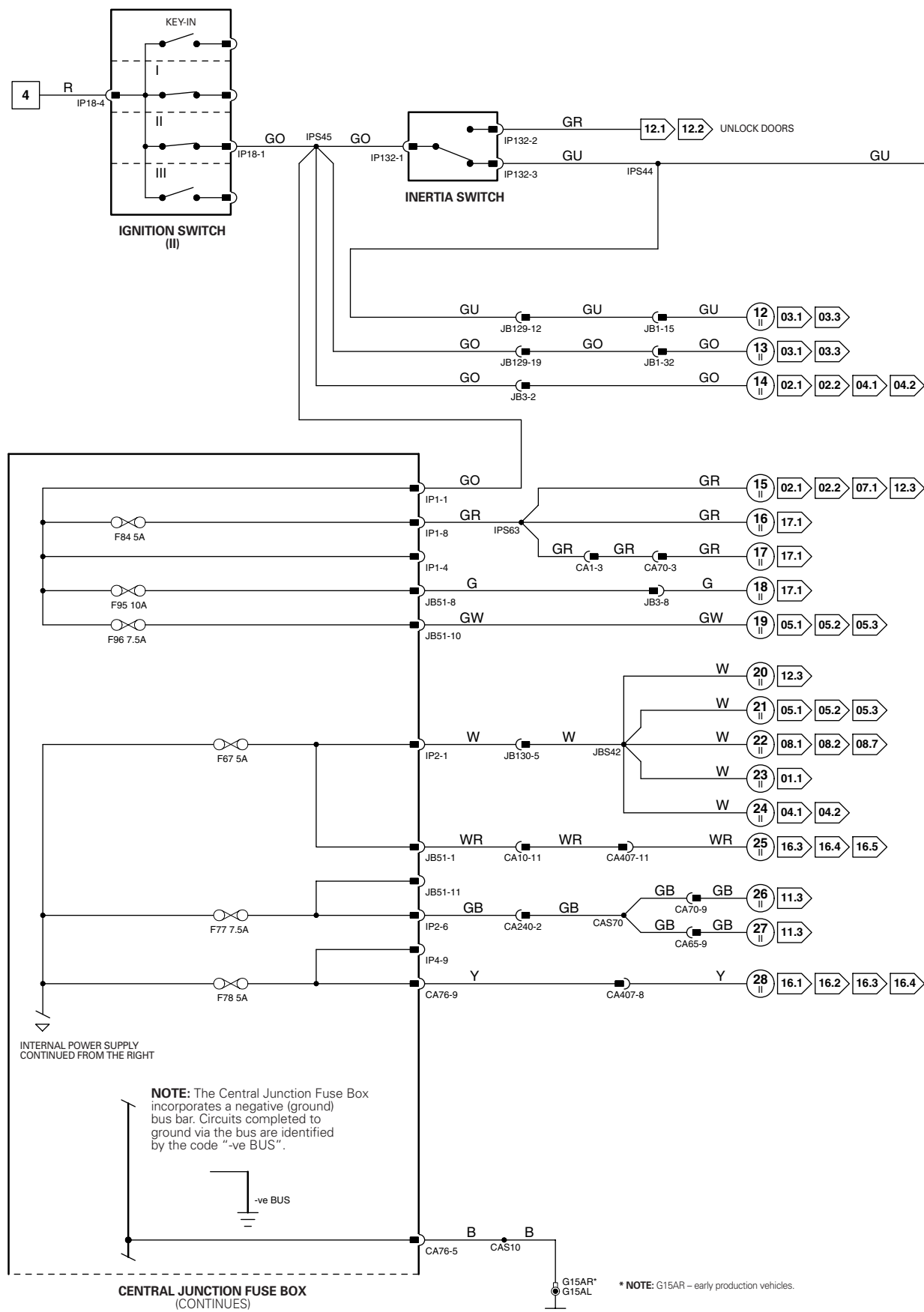




**NOTATION:**

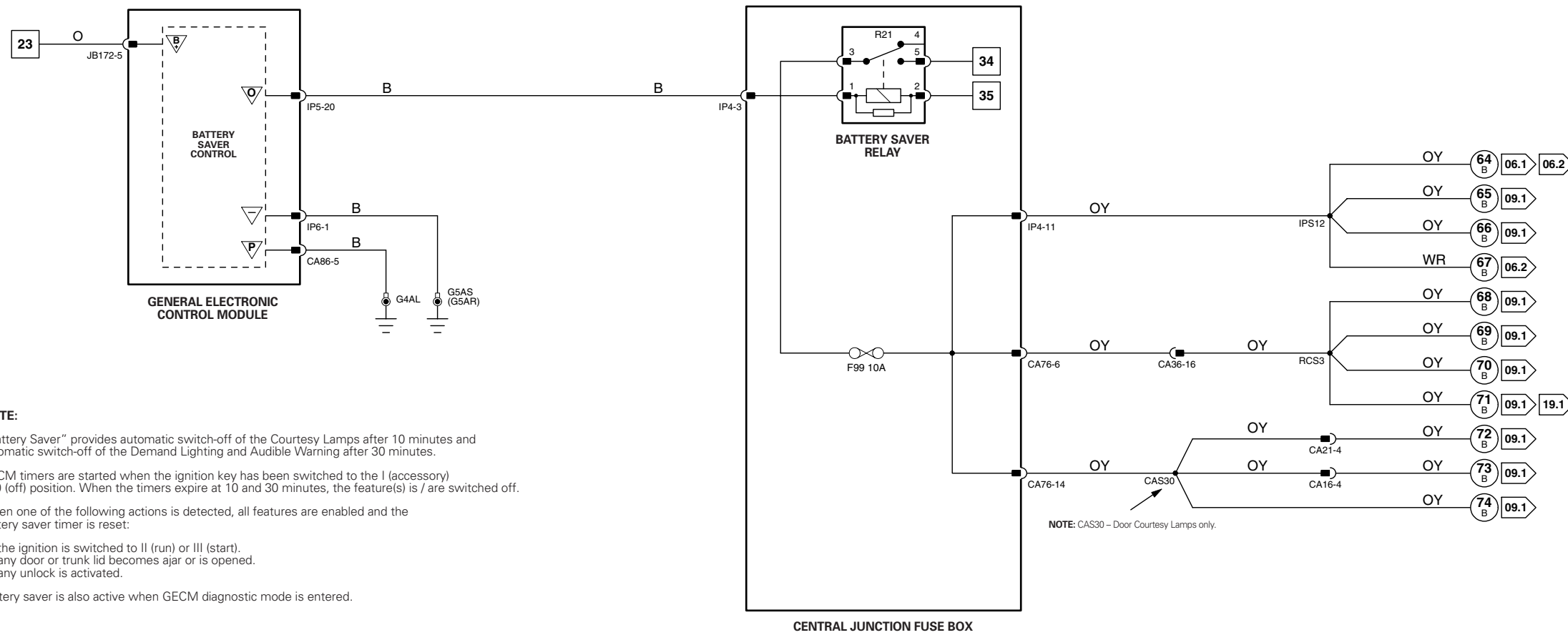
- (1) Single Function LH Seat
- (2) Powered LH Seat with Heater
- (3) Single Function RH Seat
- (4) Powered RH Seat with Heater
- (5) CD Autochanger and Navigation
- (6) Navigation Only
- (7) CD Only





\*\* NOTE: WU - early production vehicles.

\* NOTE: G15AR - early production vehicles.



**NOTE:**

“Battery Saver” provides automatic switch-off of the Courtesy Lamps after 10 minutes and automatic switch-off of the Demand Lighting and Audible Warning after 30 minutes.

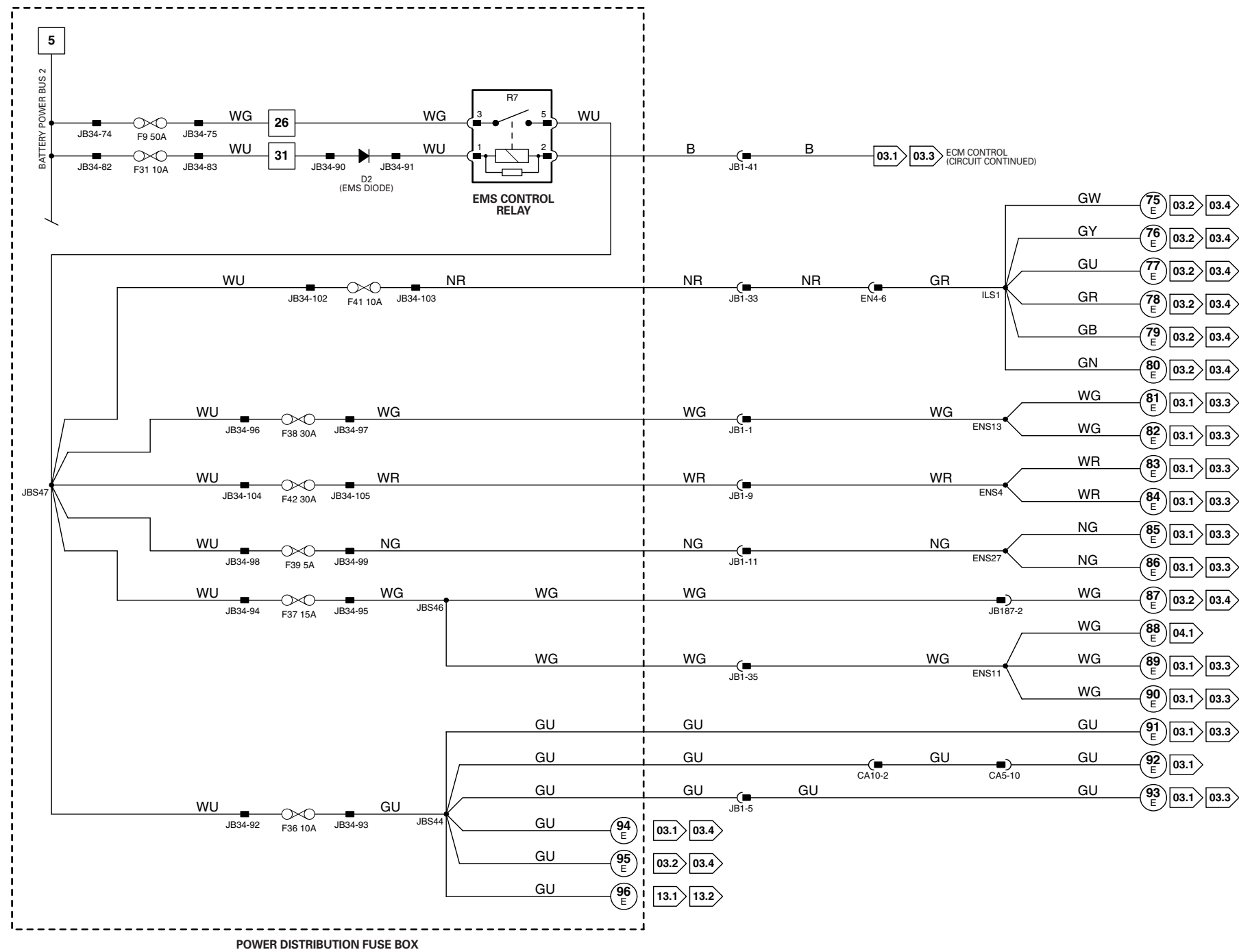
GECM timers are started when the ignition key has been switched to the I (accessory) or 0 (off) position. When the timers expire at 10 and 30 minutes, the feature(s) is / are switched off.

When one of the following actions is detected, all features are enabled and the battery saver timer is reset:

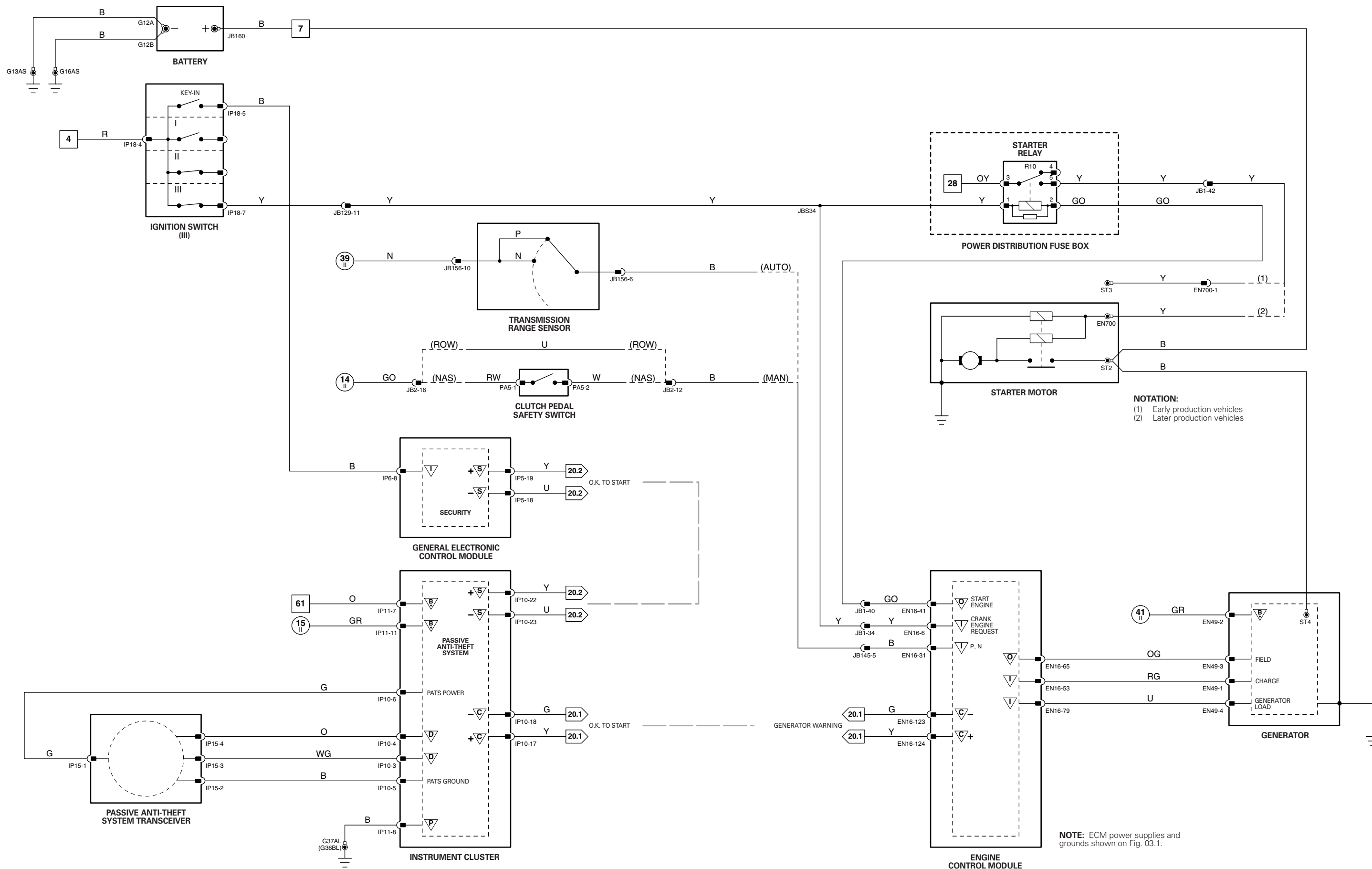
- the ignition is switched to II (run) or III (start).
- any door or trunk lid becomes ajar or is opened.
- any unlock is activated.

Battery saver is also active when GECM diagnostic mode is entered.

NOTE: CAS30 – Door Courtesy Lamps only.

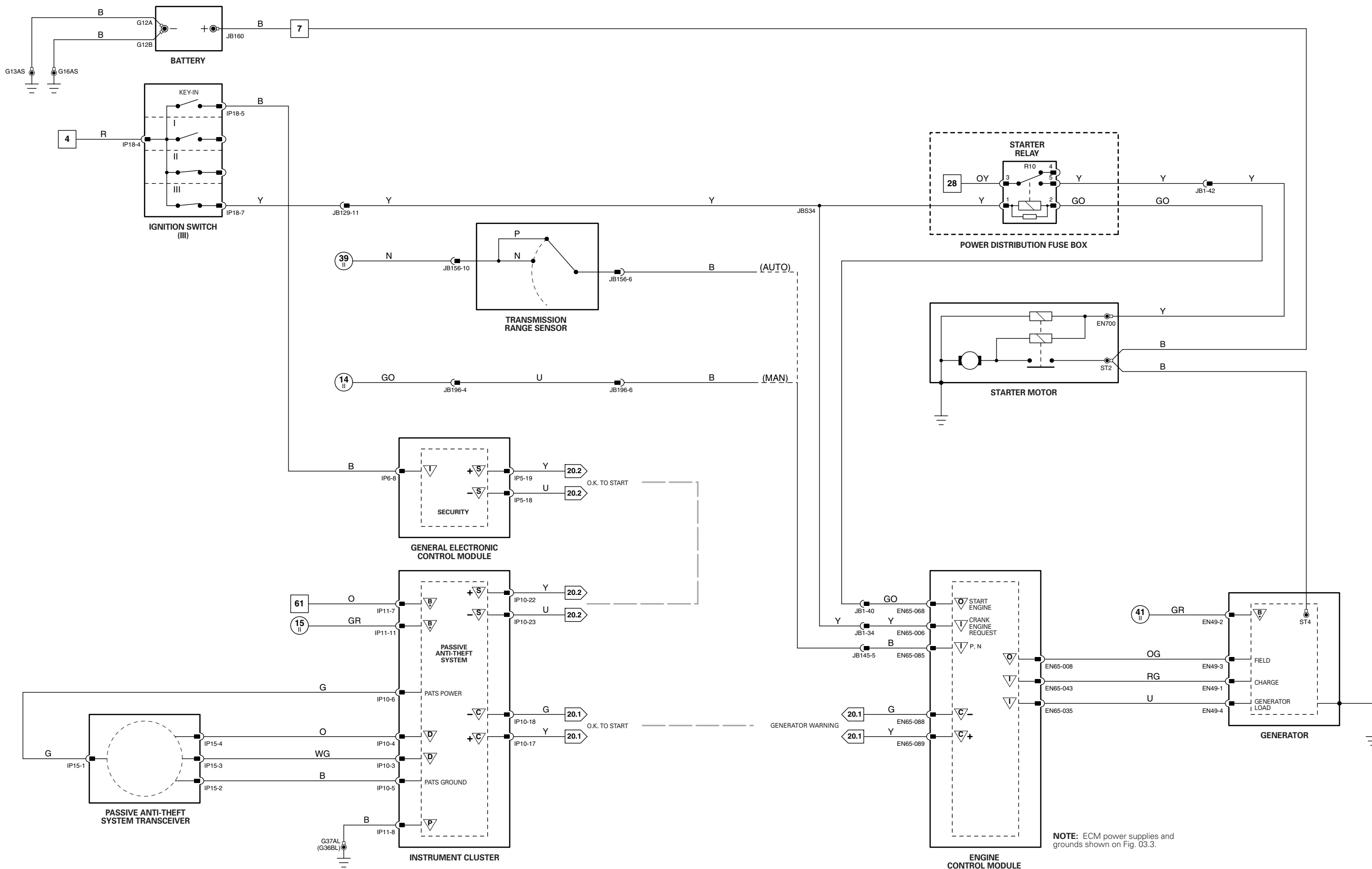


POWER DISTRIBUTION FUSE BOX



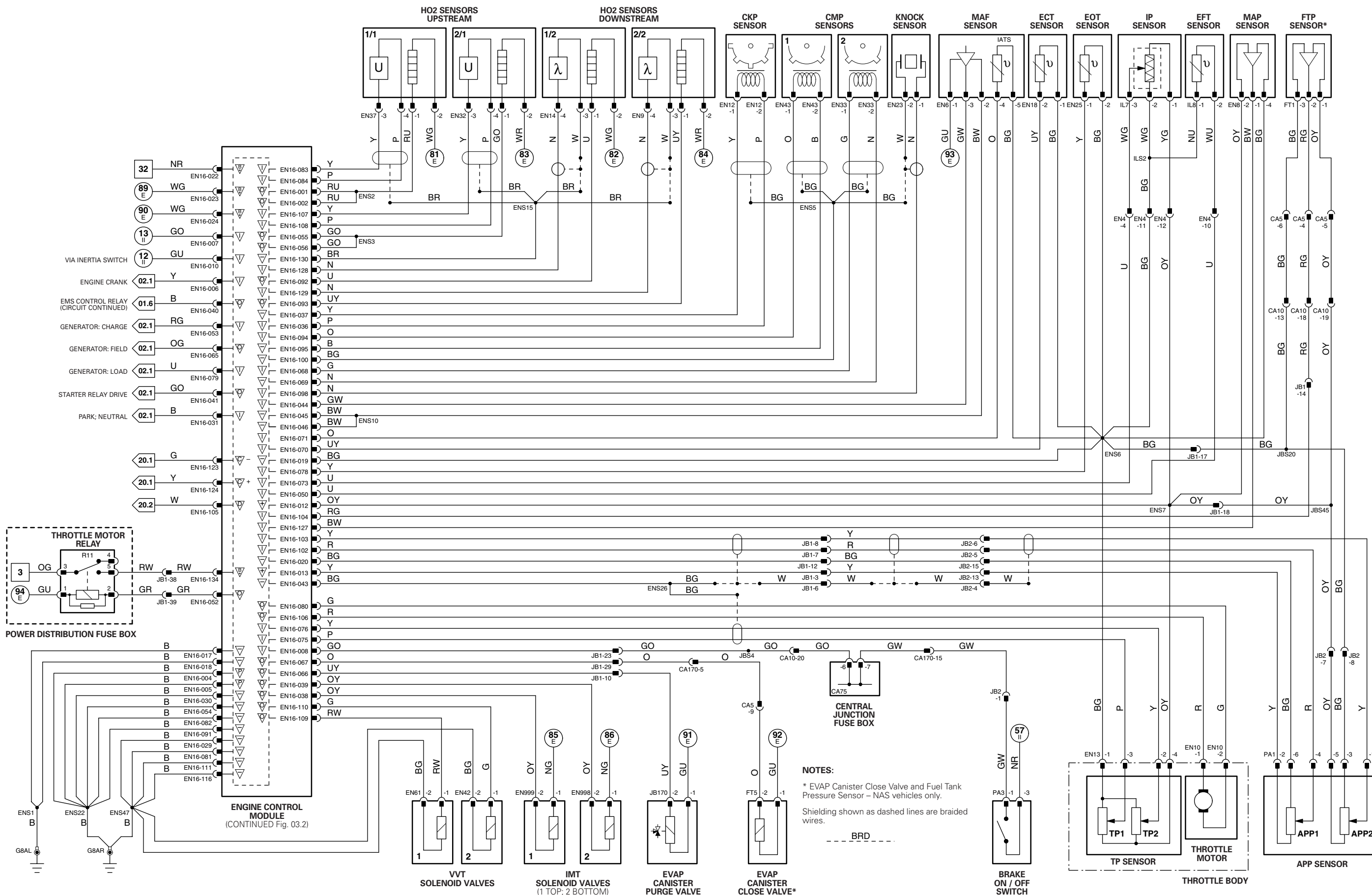
|                  |                   |                        |                   |                           |                   |         |                   |                          |       |               |
|------------------|-------------------|------------------------|-------------------|---------------------------|-------------------|---------|-------------------|--------------------------|-------|---------------|
| 1 → 13 Fig. 01.1 | 14 → 64 Fig. 01.2 | 1 → 11 Fig. 01.3       | 12 → 63 Fig. 01.4 | 64 → 74 Fig. 01.5         | 75 → 96 Fig. 01.6 | ∇ Input | B Battery Voltage | ∇ Sensor/Signal Supply V | ∇ CAN | ∇ D2B Network |
| ∇ Output         | P Power Ground    | ∇ Sensor/Signal Ground | ∇ SCP             | ∇ Serial and Encoded Data |                   |         |                   |                          |       |               |

VARIANT: 2.5L & 3.0L Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: December 2001

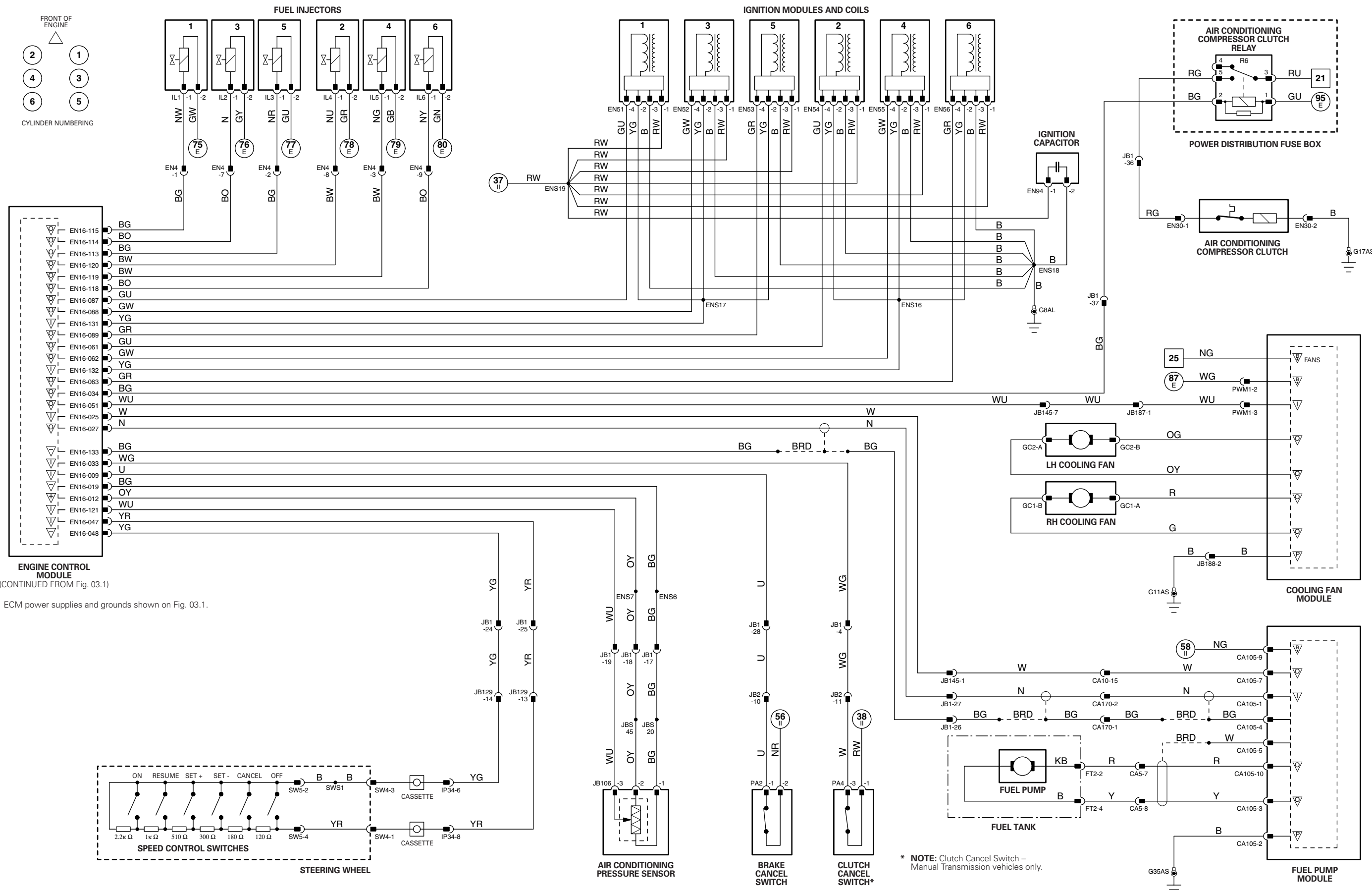


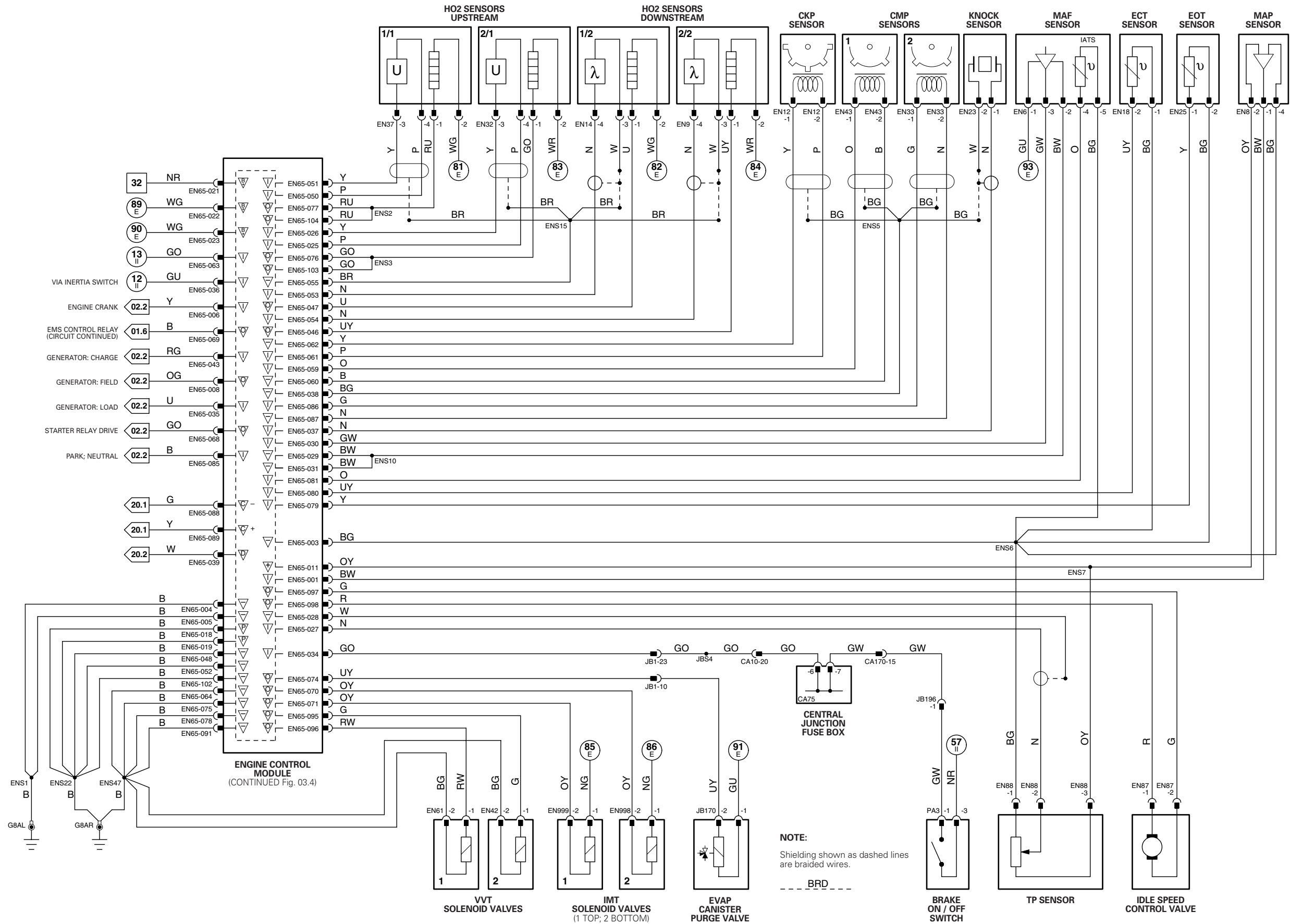
NOTE: ECM power supplies and grounds shown on Fig. 03.3.



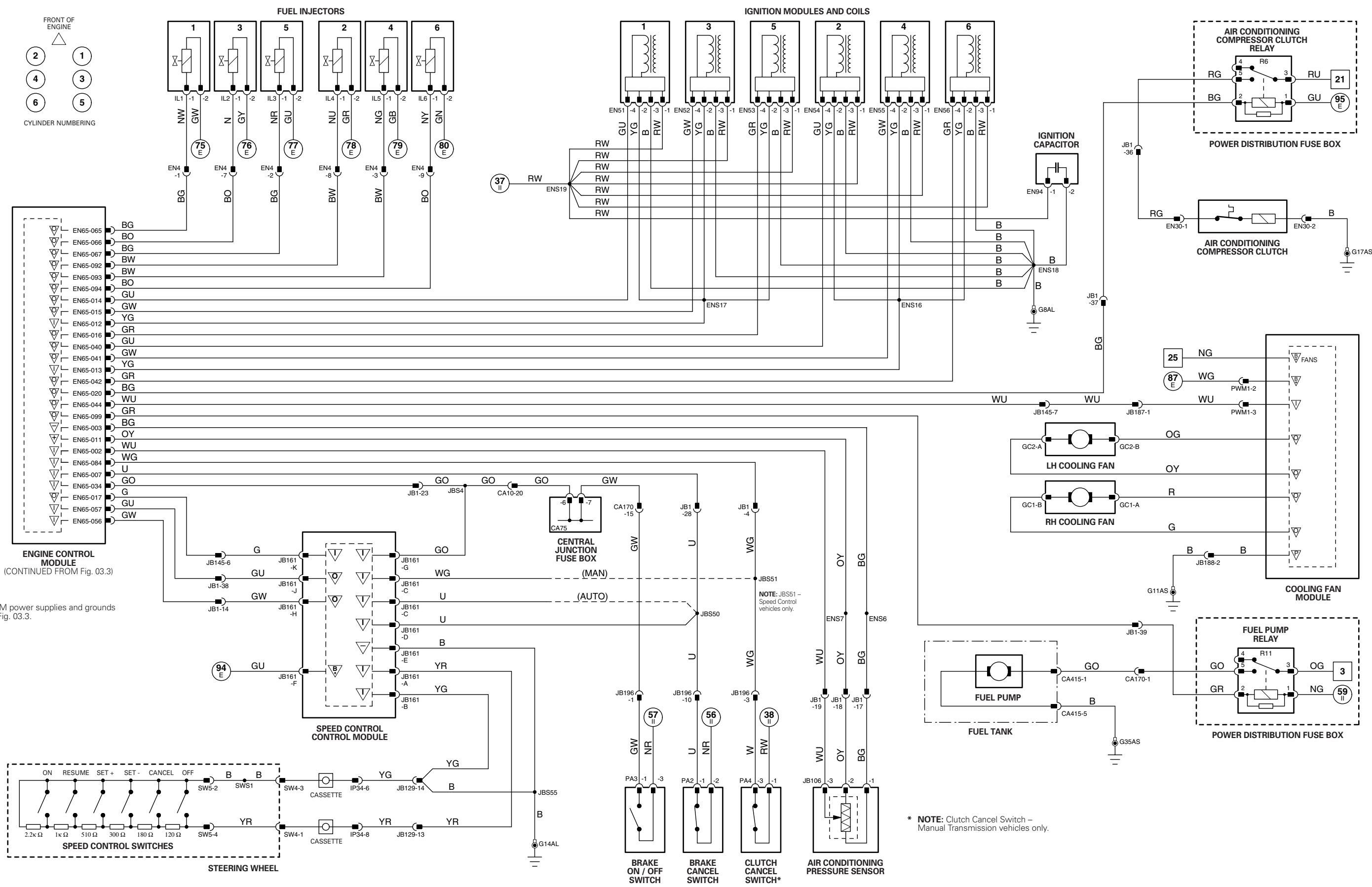


**NOTES:**  
 \* EVAP Canister Close Valve and Fuel Tank Pressure Sensor – NAS vehicles only.  
 Shielding shown as dashed lines are braided wires.  
 --- BRD ---



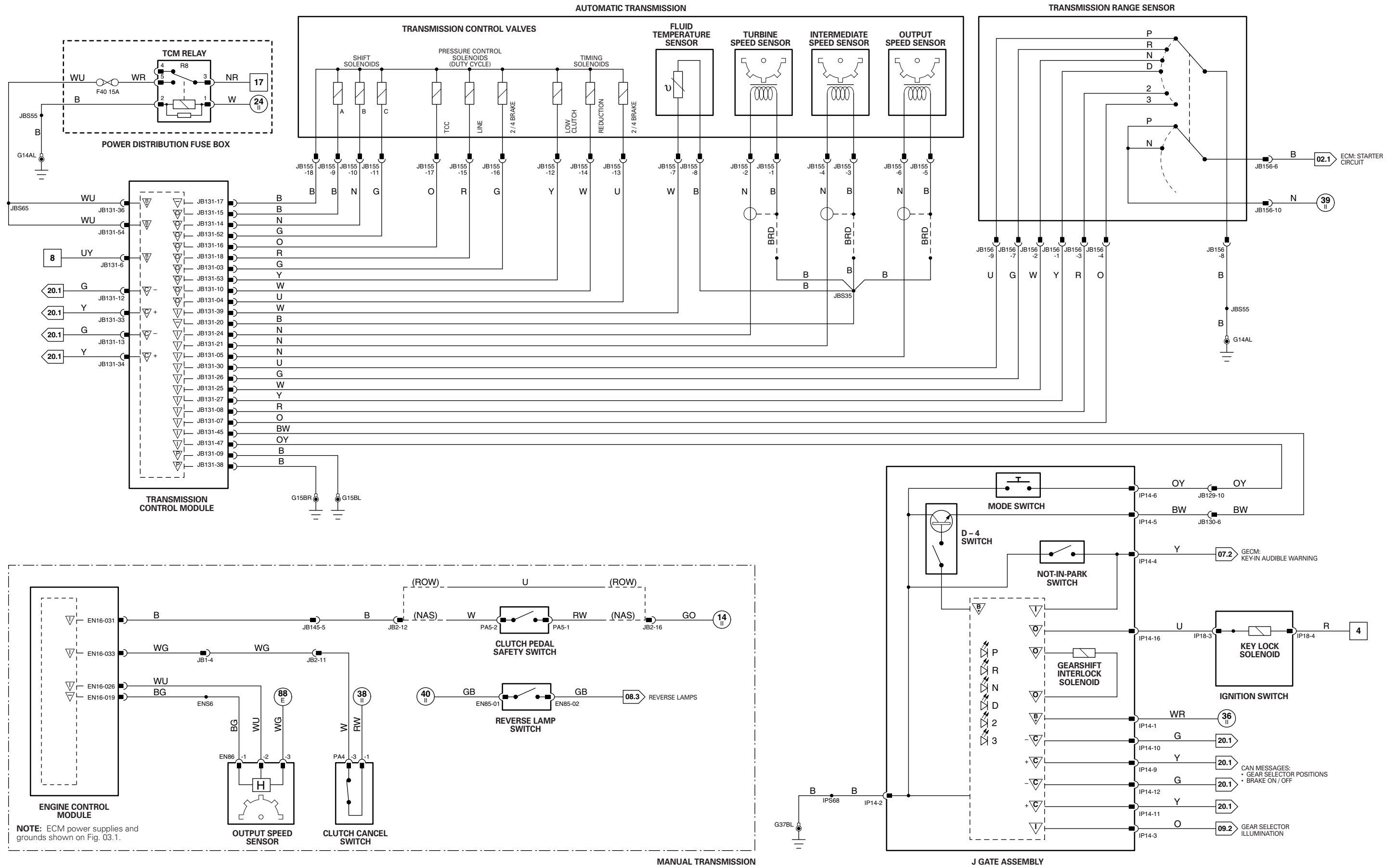


**NOTE:**  
Shielding shown as dashed lines are braided wires.  
--- BRD ---



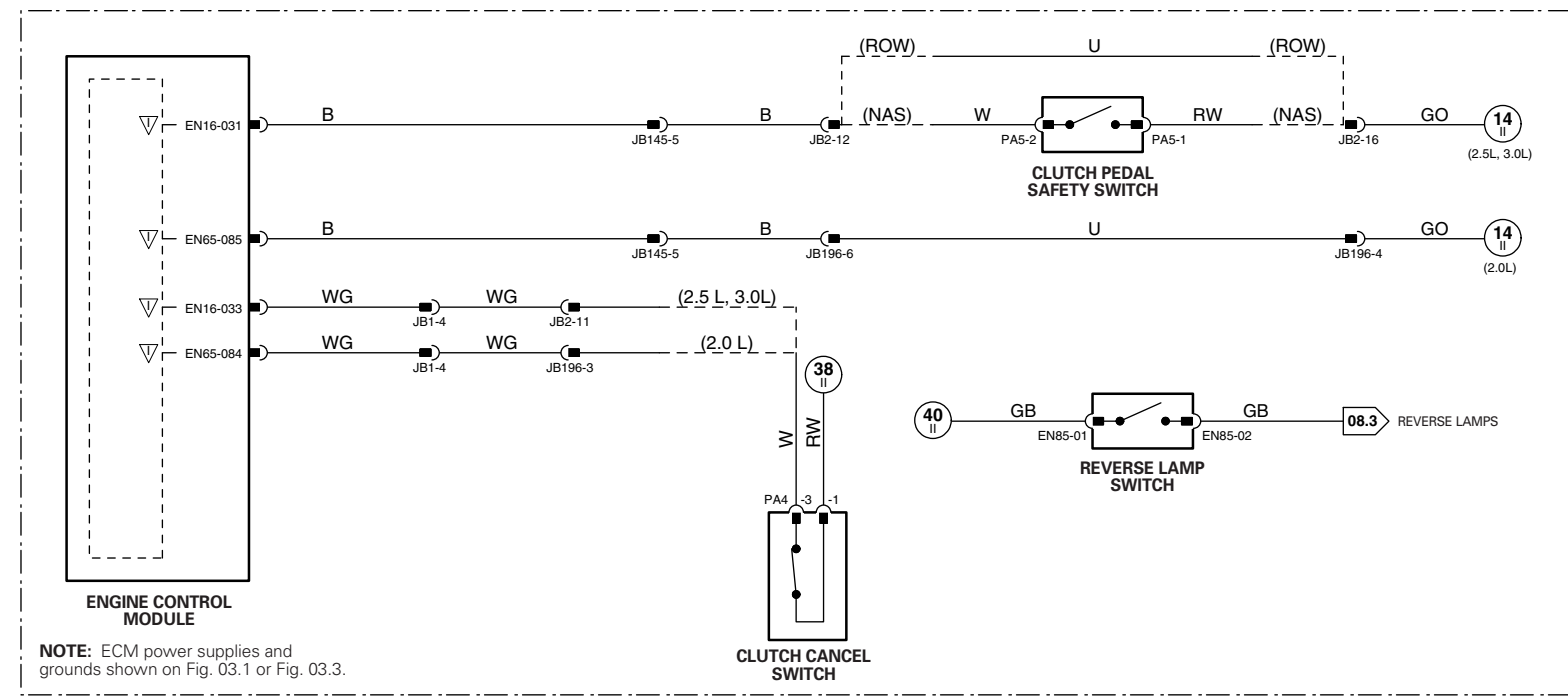
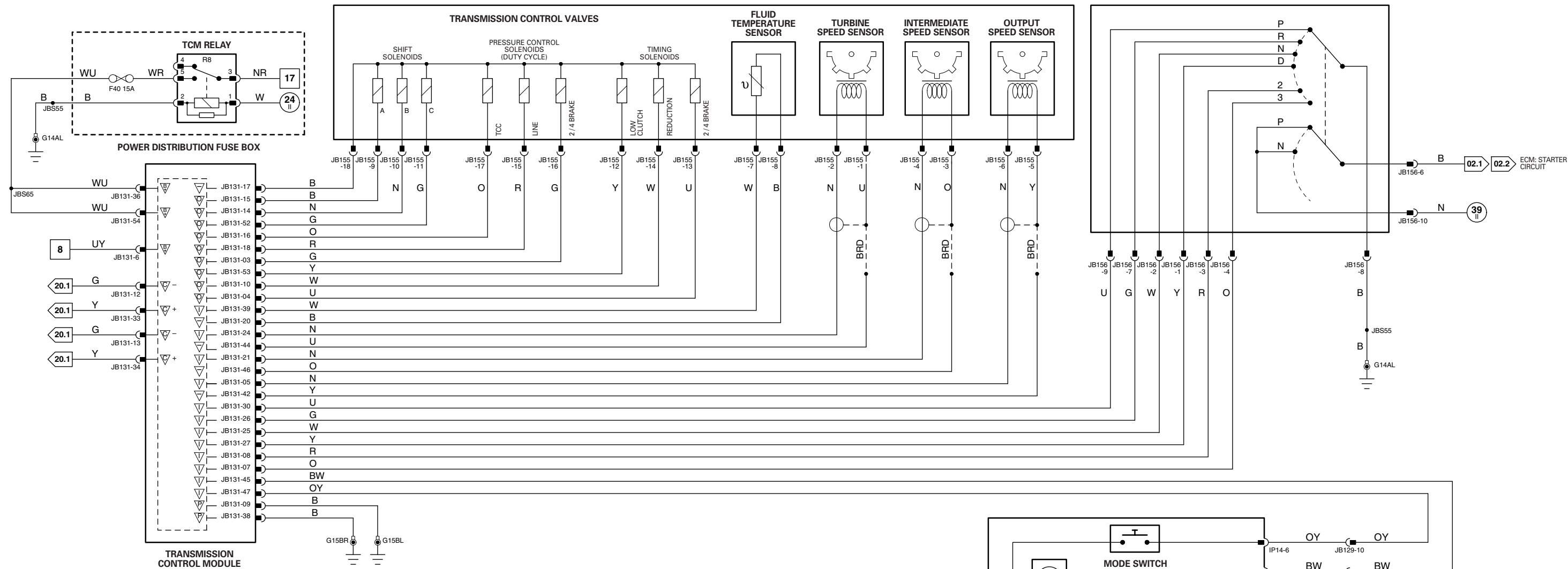
|                  |                   |                        |                   |                           |                   |       |                   |                          |       |               |
|------------------|-------------------|------------------------|-------------------|---------------------------|-------------------|-------|-------------------|--------------------------|-------|---------------|
| 1 → 13 Fig. 01.1 | 14 → 64 Fig. 01.2 | 1 → 11 Fig. 01.3       | 12 → 63 Fig. 01.4 | 64 → 74 Fig. 01.5         | 75 → 96 Fig. 01.6 | Input | B Battery Voltage | S Sensor/Signal Supply V | C CAN | D D2B Network |
| Output           | P Power Ground    | S Sensor/Signal Ground | S SCP             | D Serial and Encoded Data |                   |       |                   |                          |       |               |

VARIANT: 2.0L Vehicles  
VIN RANGE: All  
DATE OF ISSUE: December 2001

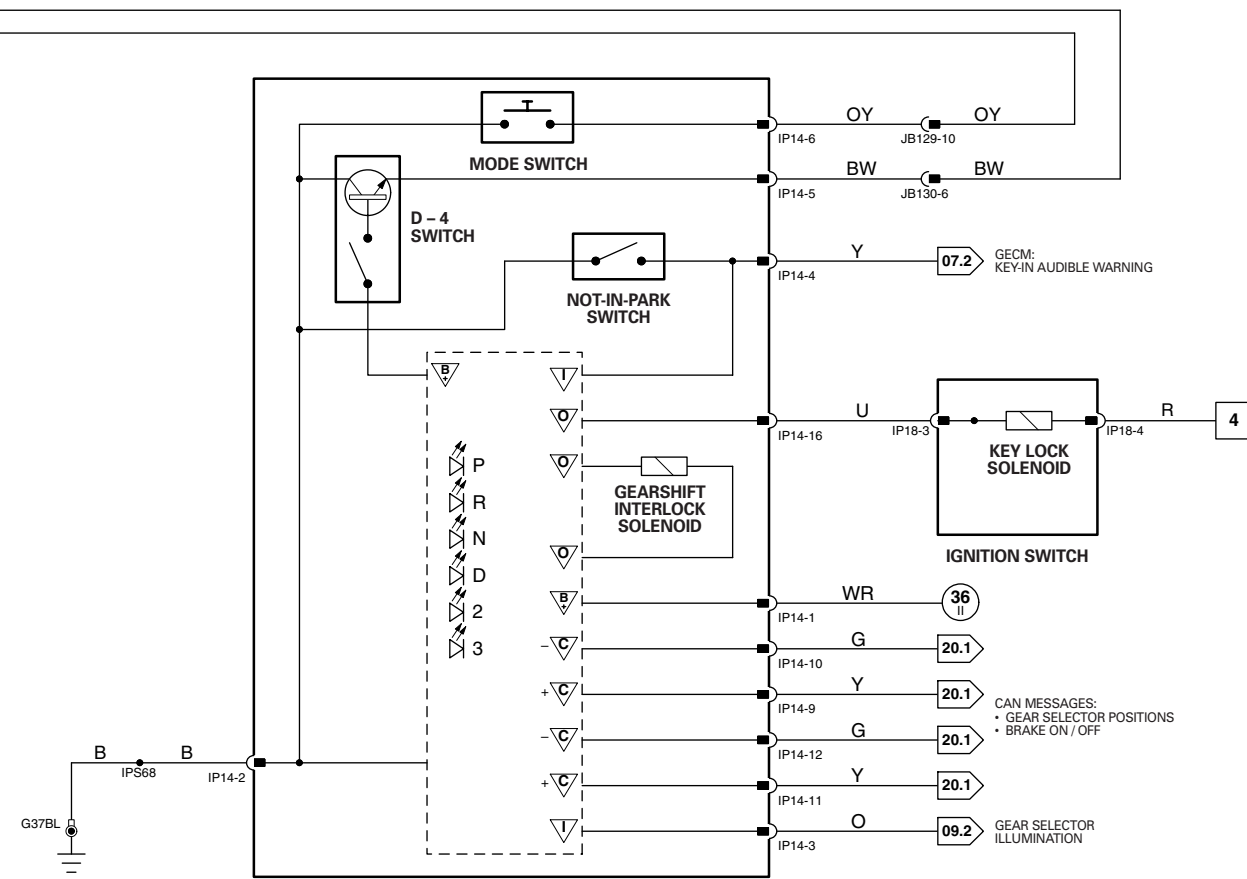




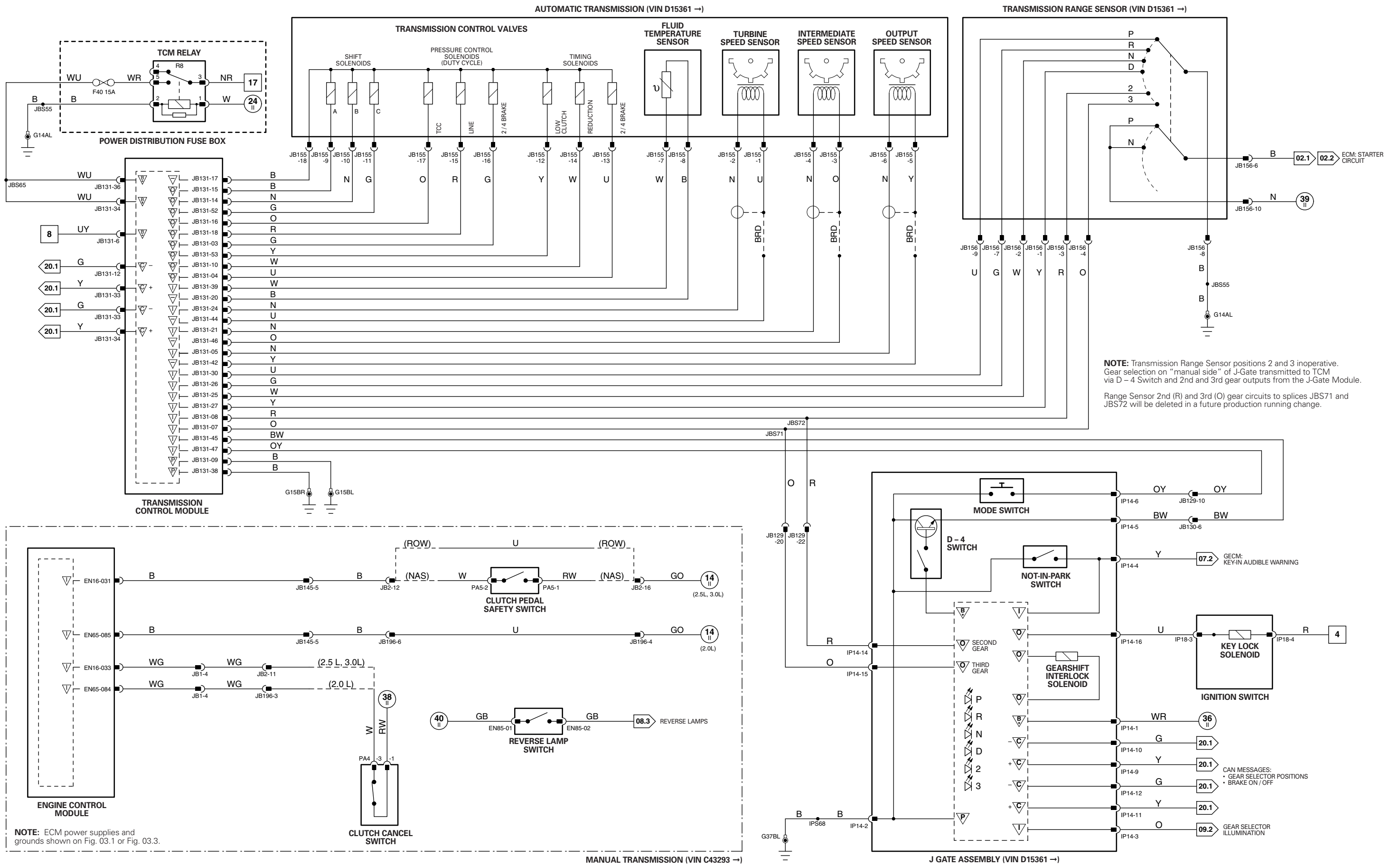
AUTOMATIC TRANSMISSION (VIN C72268 → D15361)

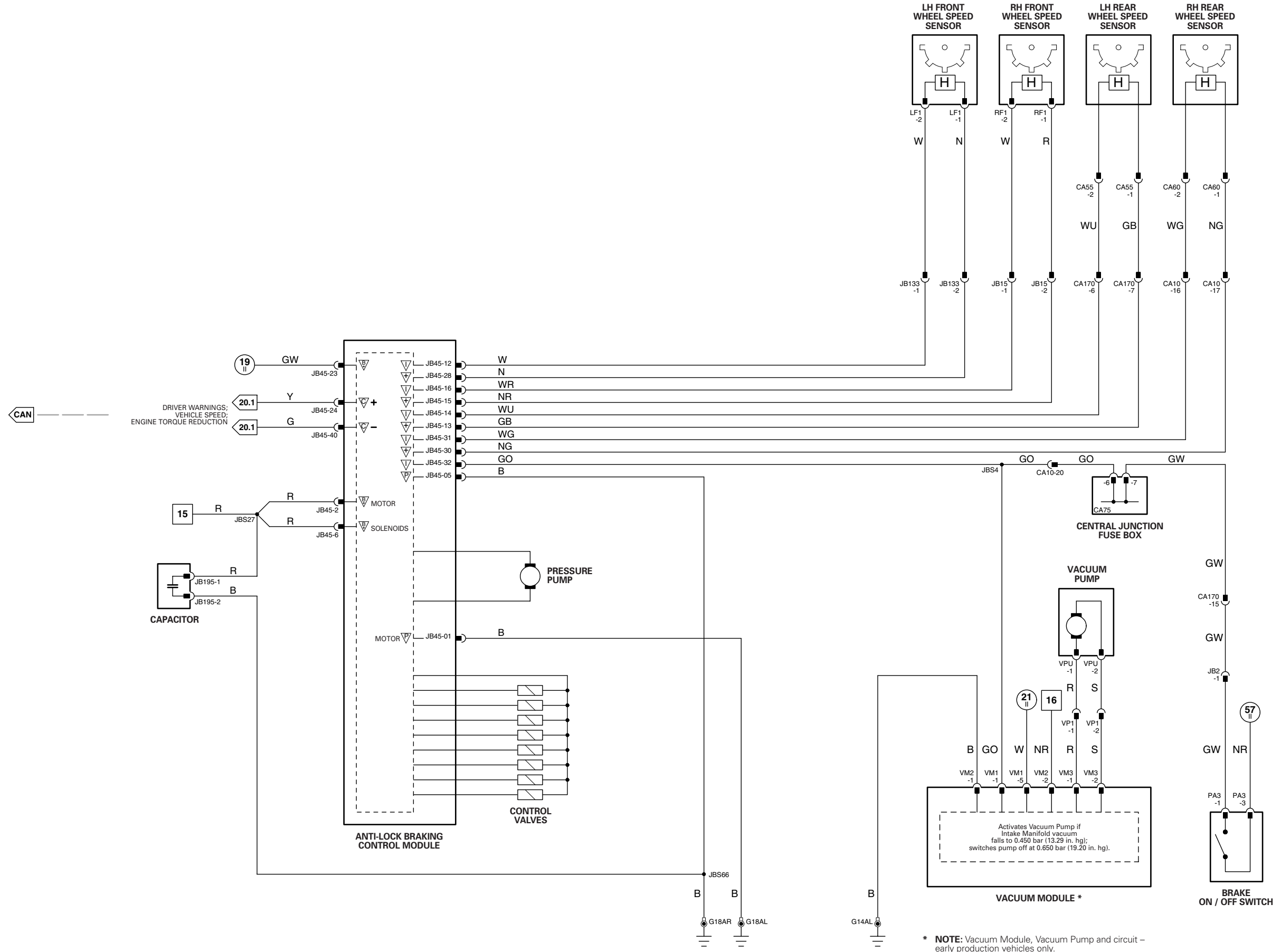


MANUAL TRANSMISSION (VIN C43293 →)



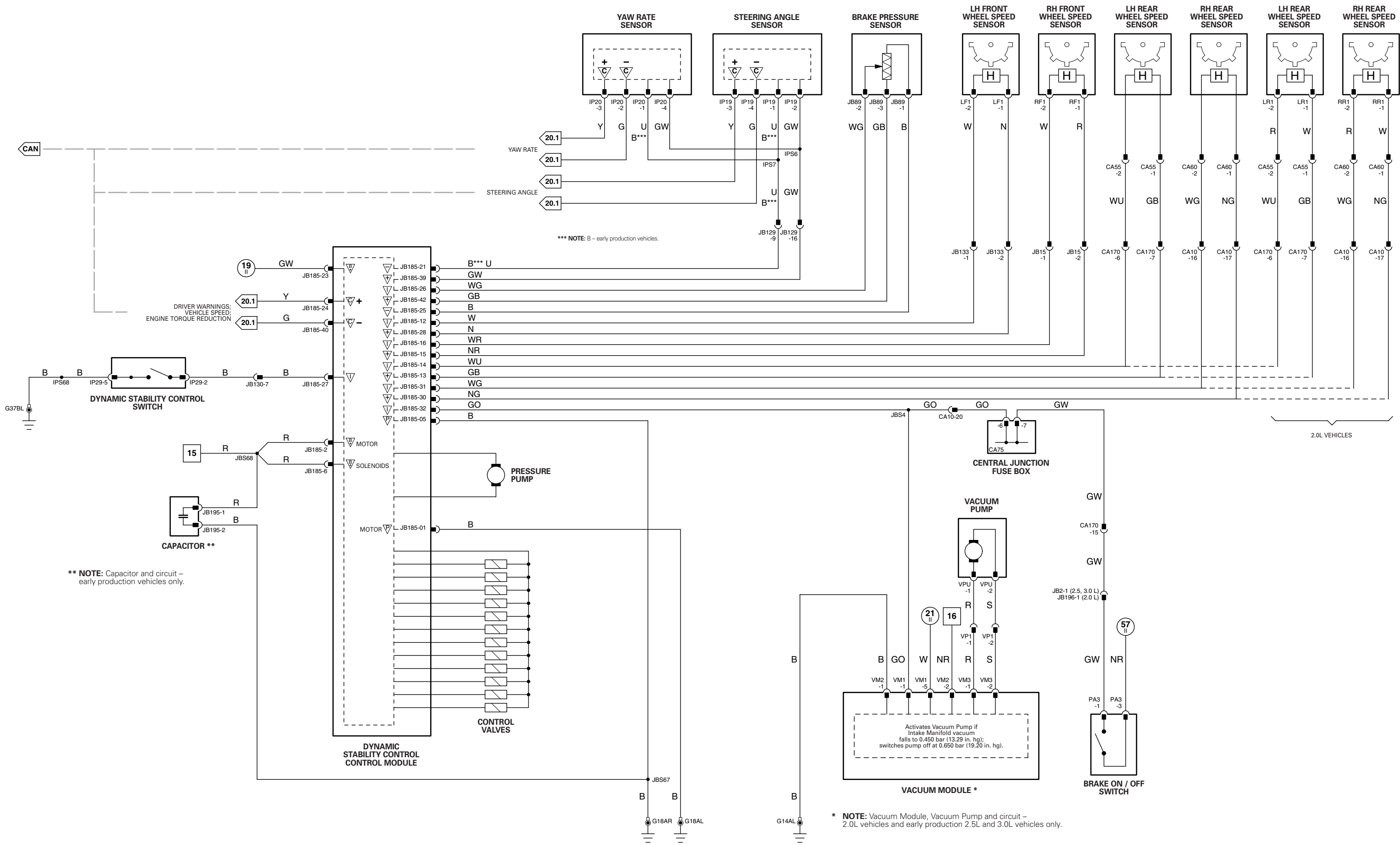
J GATE ASSEMBLY

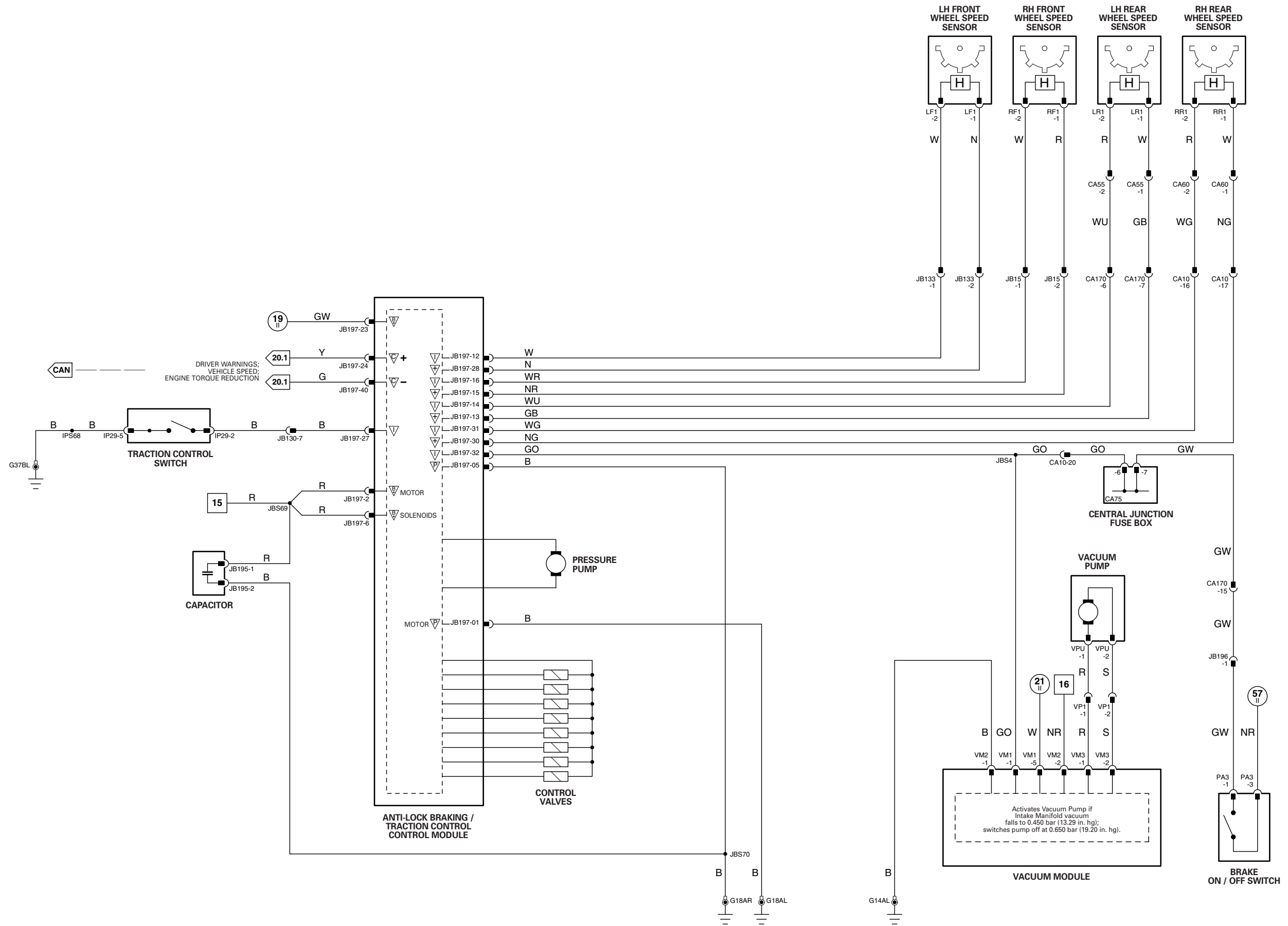




\* NOTE: Vacuum Module, Vacuum Pump and circuit – early production vehicles only.

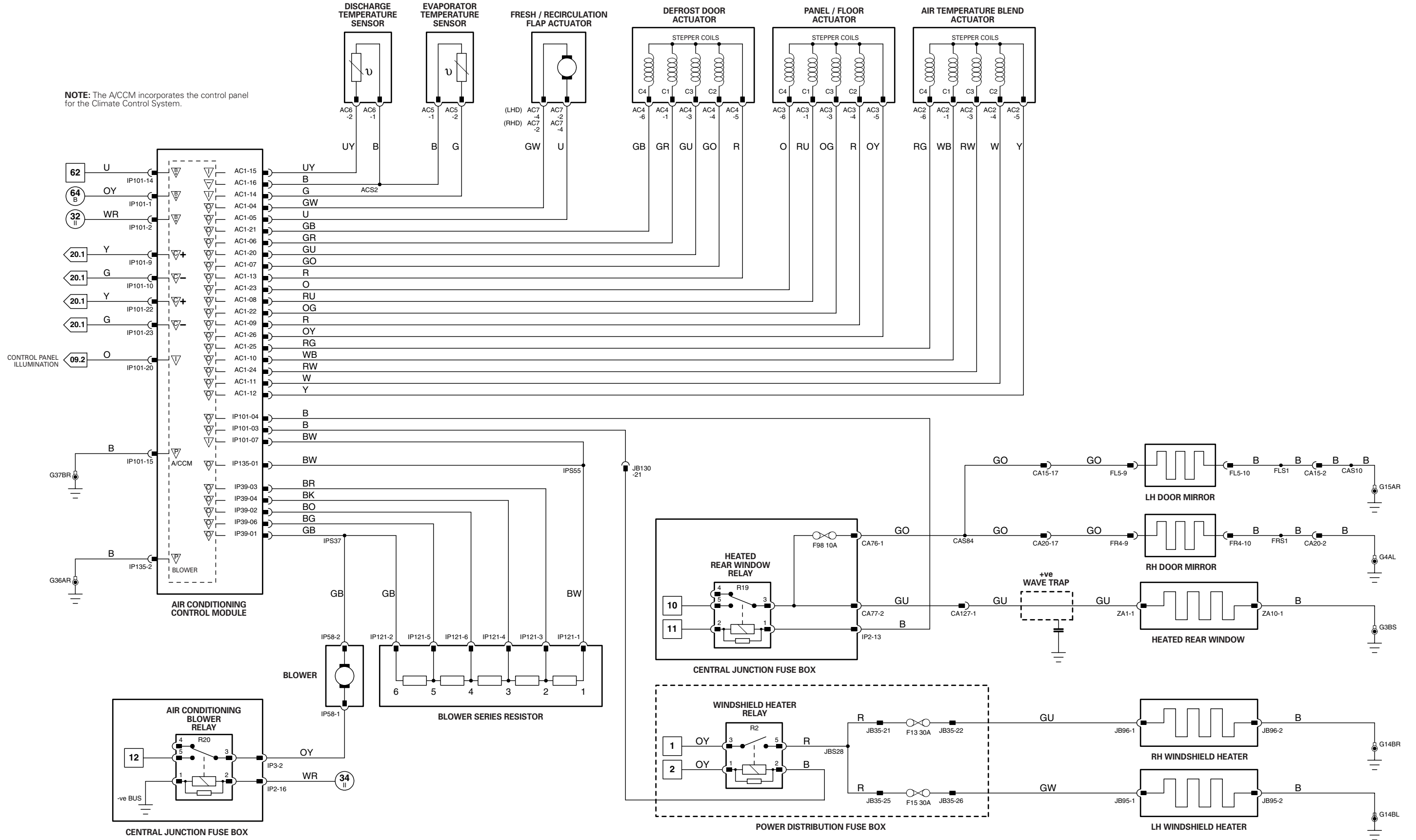




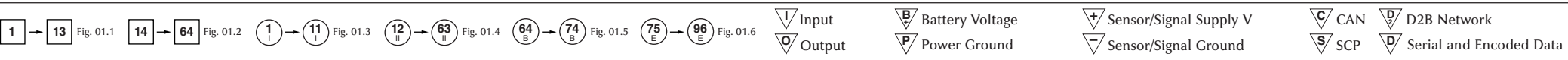




NOTE: The A/CCM incorporates the control panel for the Climate Control System.



NOTES:  
Refer to Fig. 03.2 or 03.4 for A/C Compressor Clutch and Cooling Fan circuits.  
Check market specification for fitment of Heated Windshield.



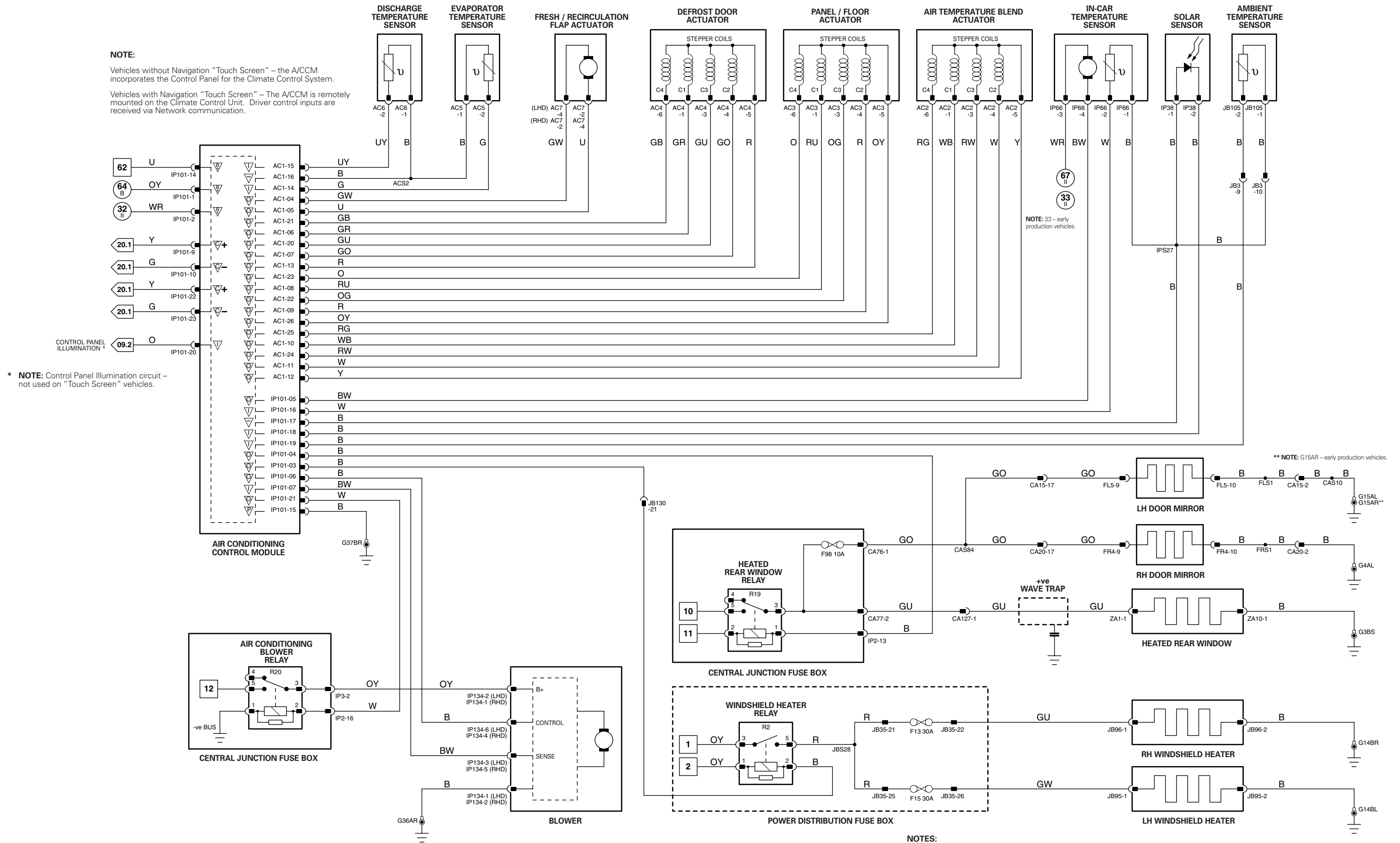
VARIANT: Manual Climate Control Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: December 2001



NOTE:

Vehicles without Navigation "Touch Screen" - the A/CCM incorporates the Control Panel for the Climate Control System.

Vehicles with Navigation "Touch Screen" - The A/CCM is remotely mounted on the Climate Control Unit. Driver control inputs are received via Network communication.

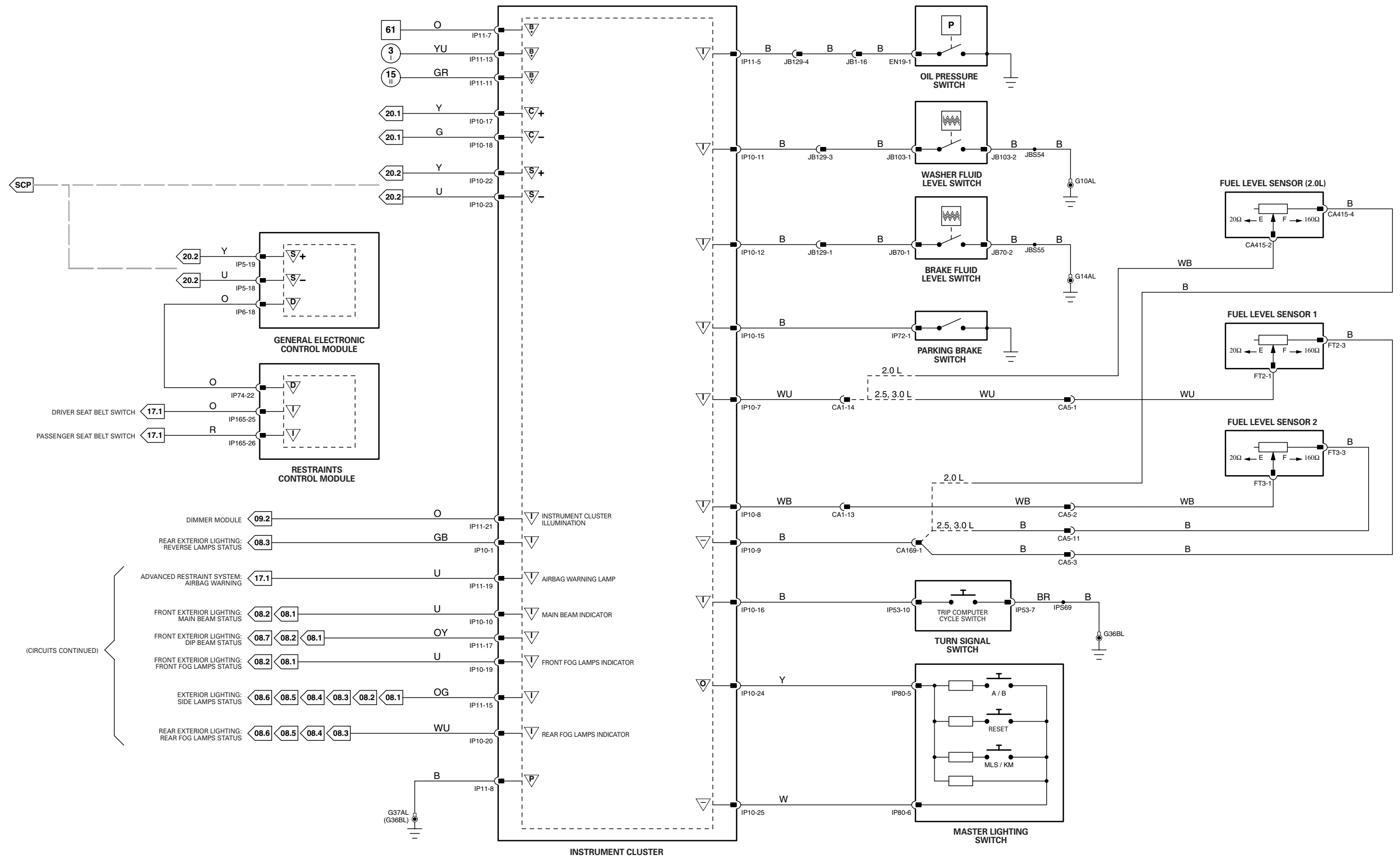


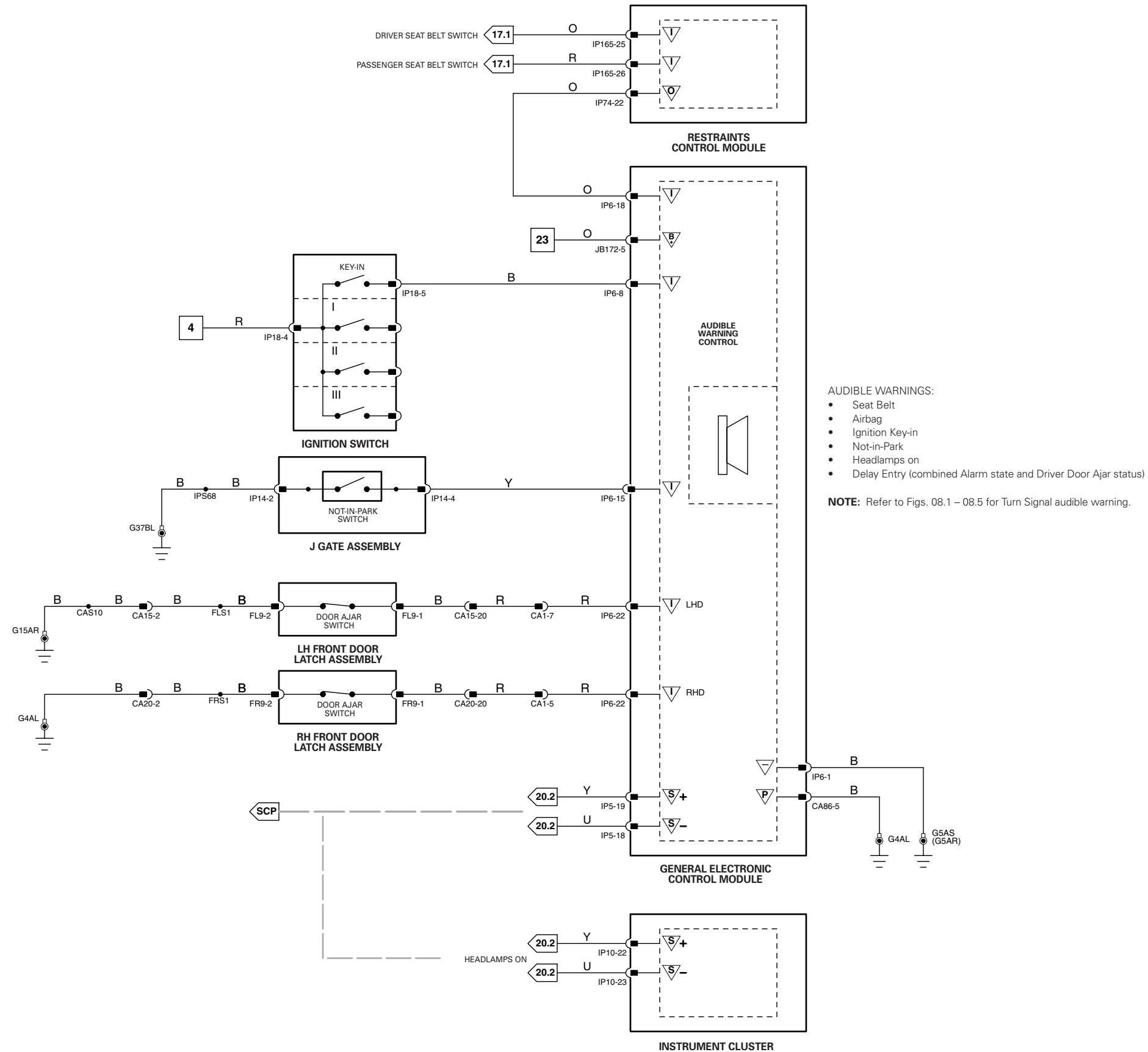
\* NOTE: Control Panel Illumination circuit - not used on "Touch Screen" vehicles.

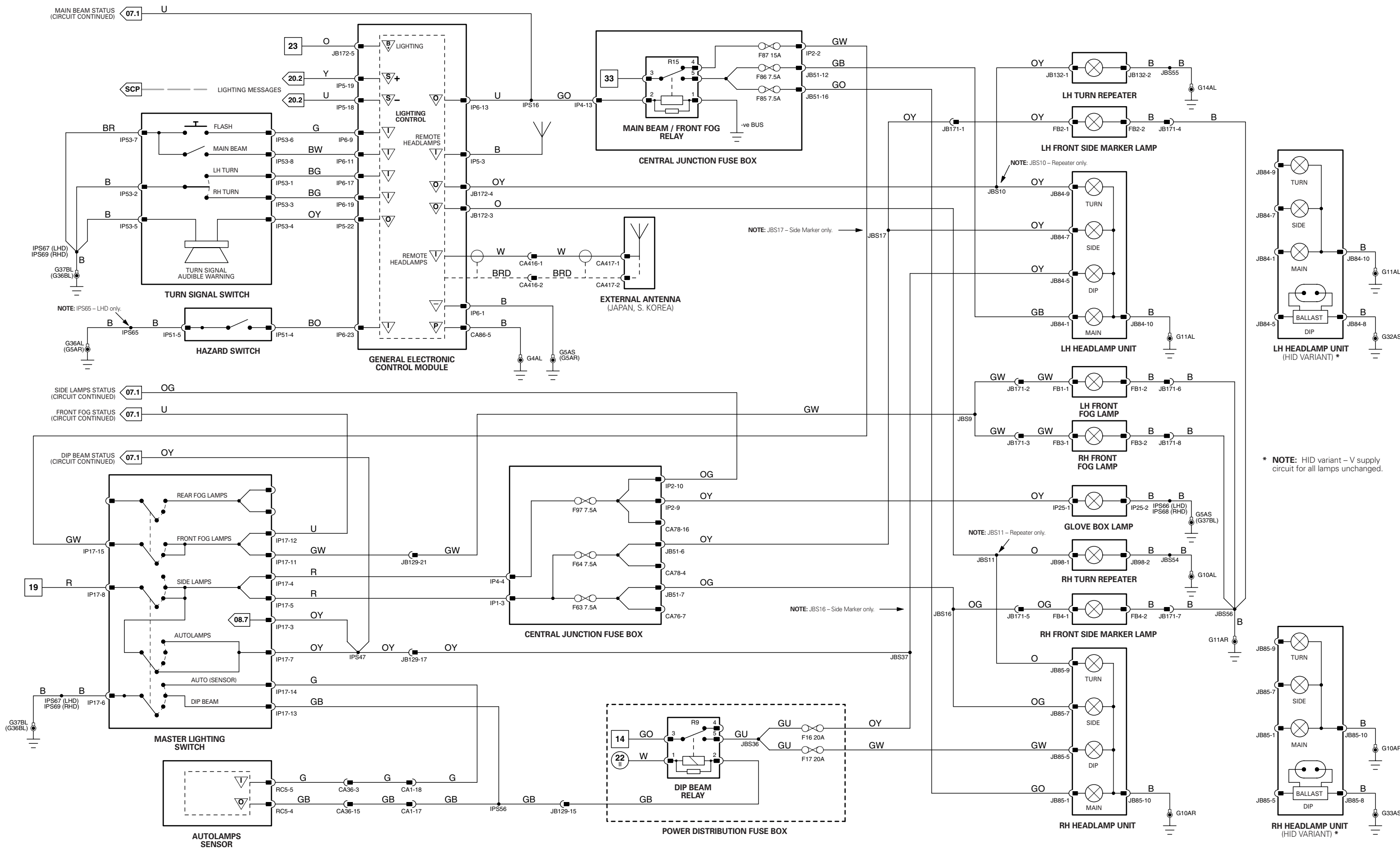
NOTE: 33 - early production vehicles.

\*\* NOTE: G15AR - early production vehicles.

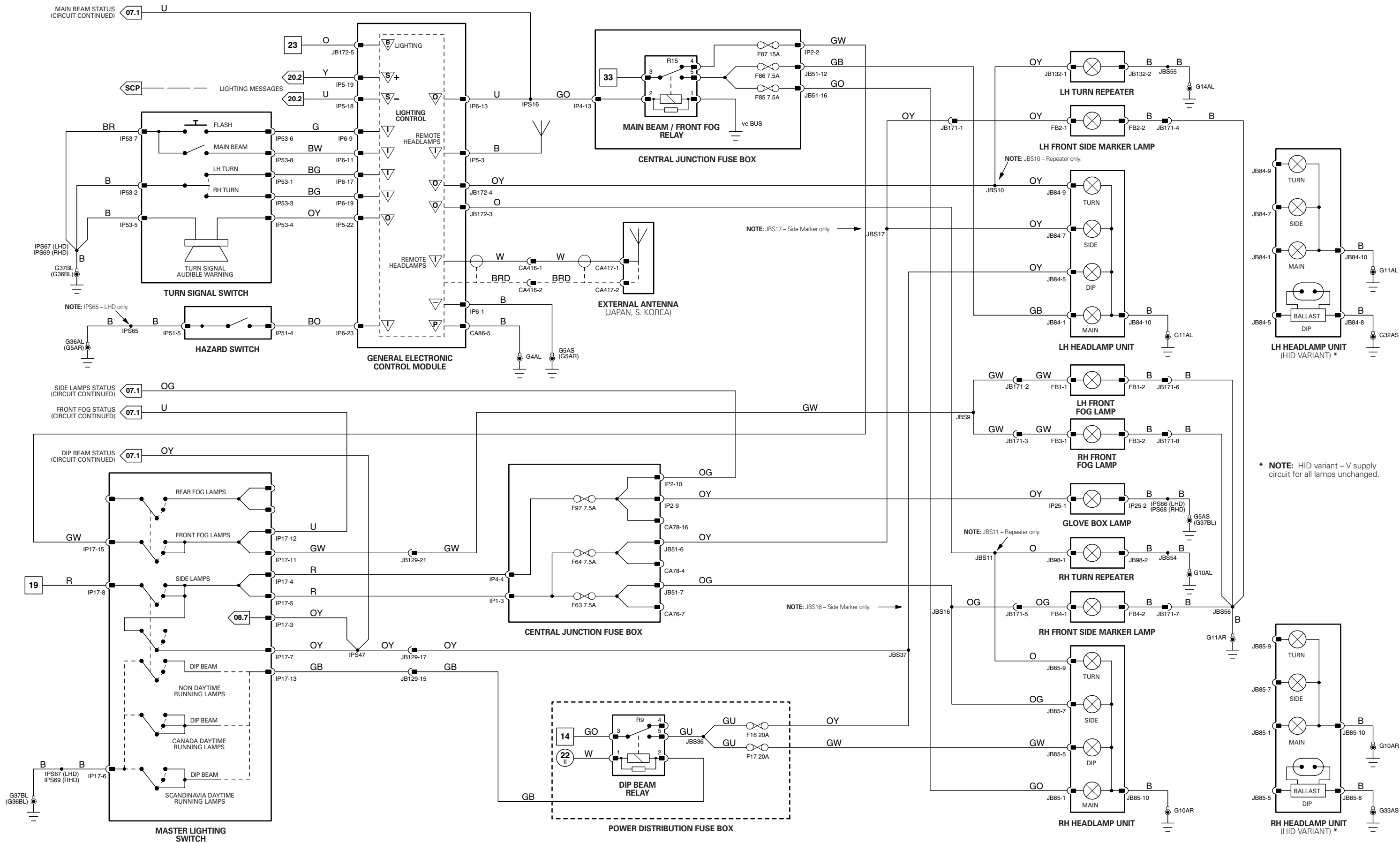
NOTES:  
Refer to Fig. 03.2 or Fig. 03.4 for A/C Compressor Clutch and Cooling Fan circuits.  
Check market specification for fitment of Heated Windshield.





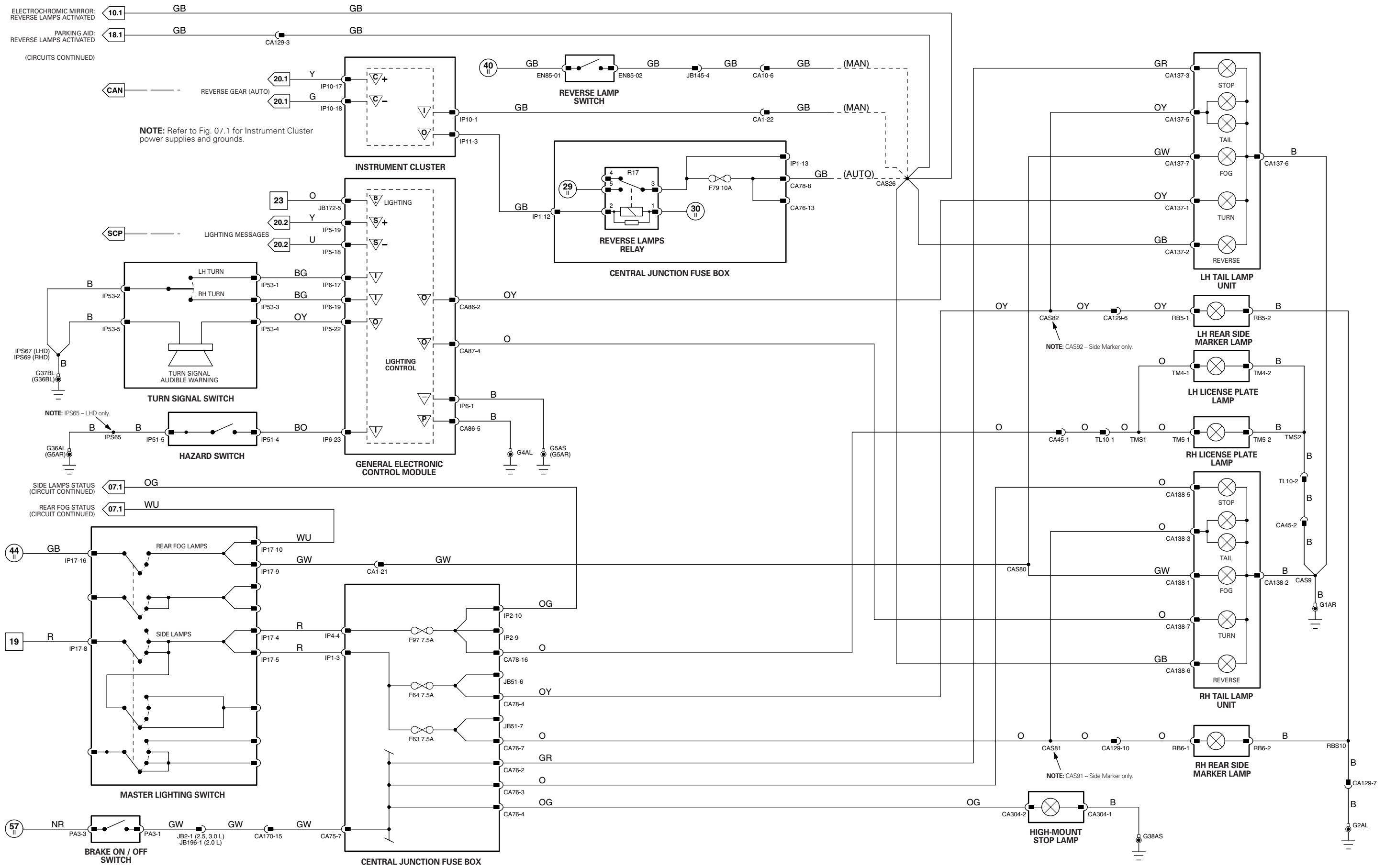


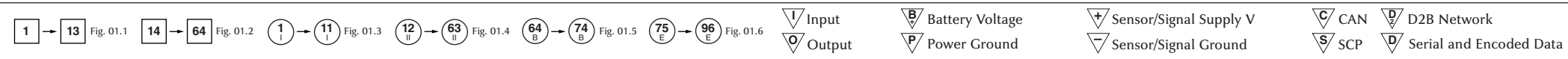
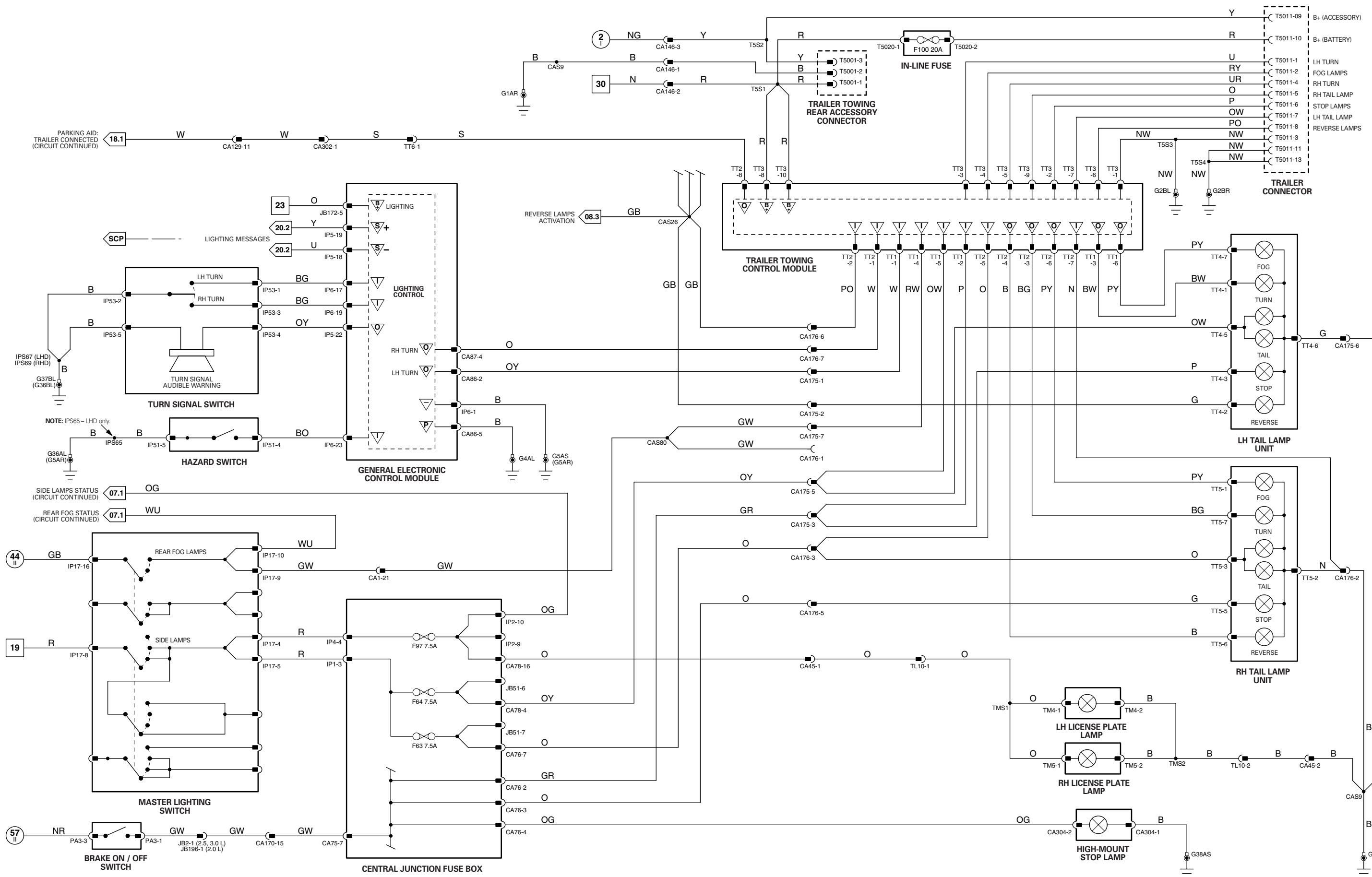
\* NOTE: HID variant – V supply circuit for all lamps unchanged.



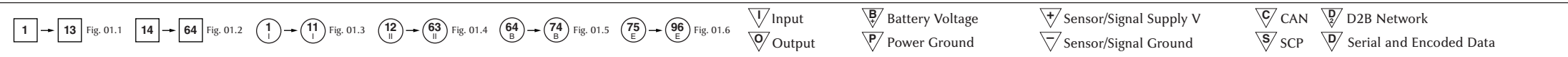
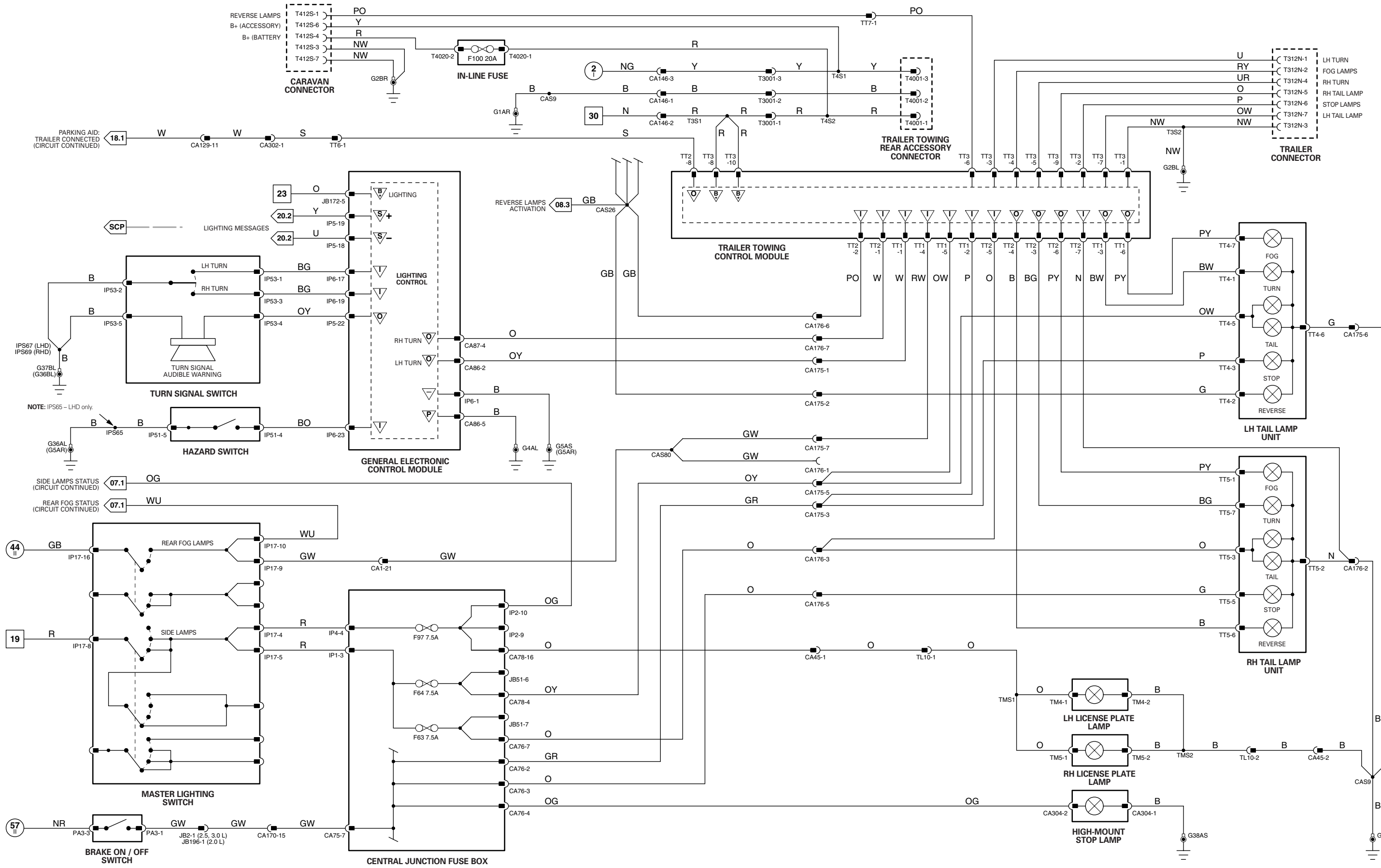
\* NOTE: HID variant – V supply circuit for all lamps unchanged.



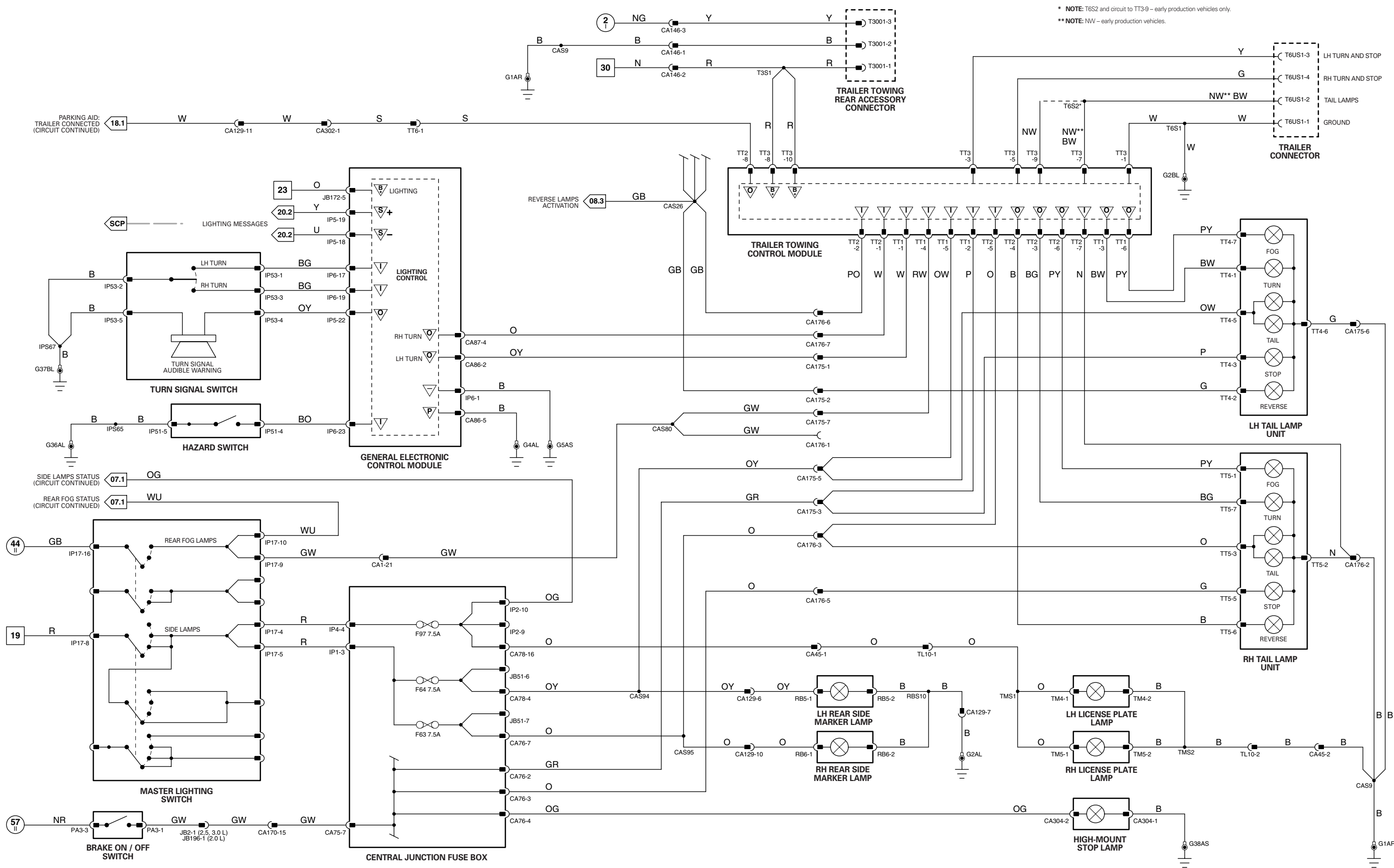




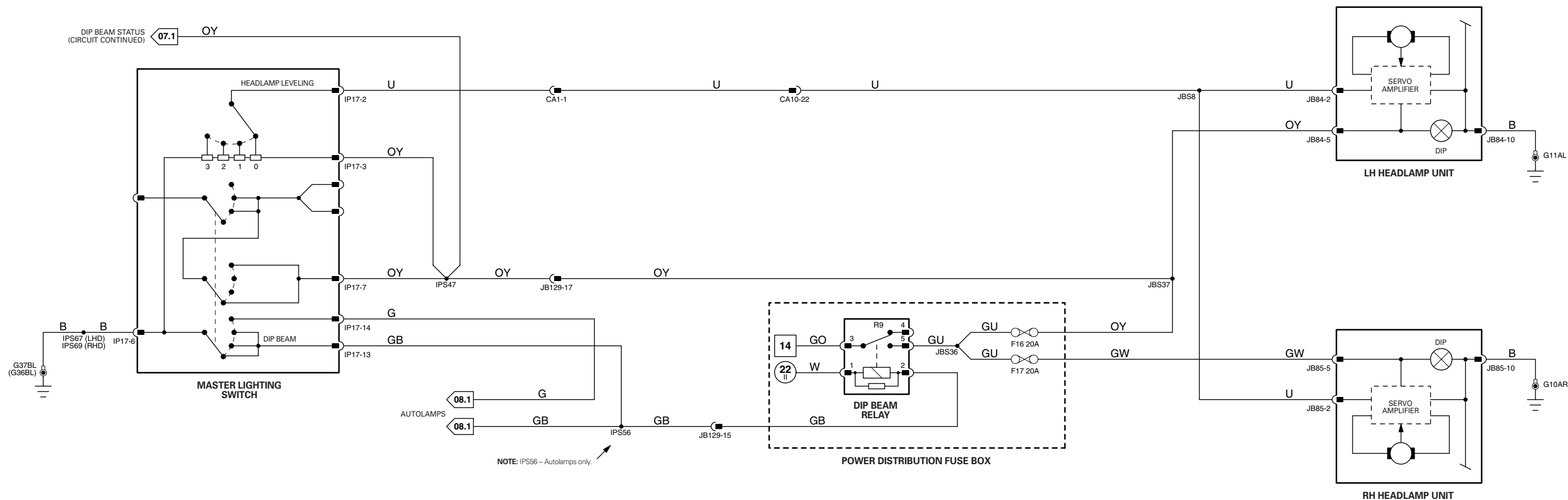
VARIANT: EUR Trailer Towing Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: December 2001



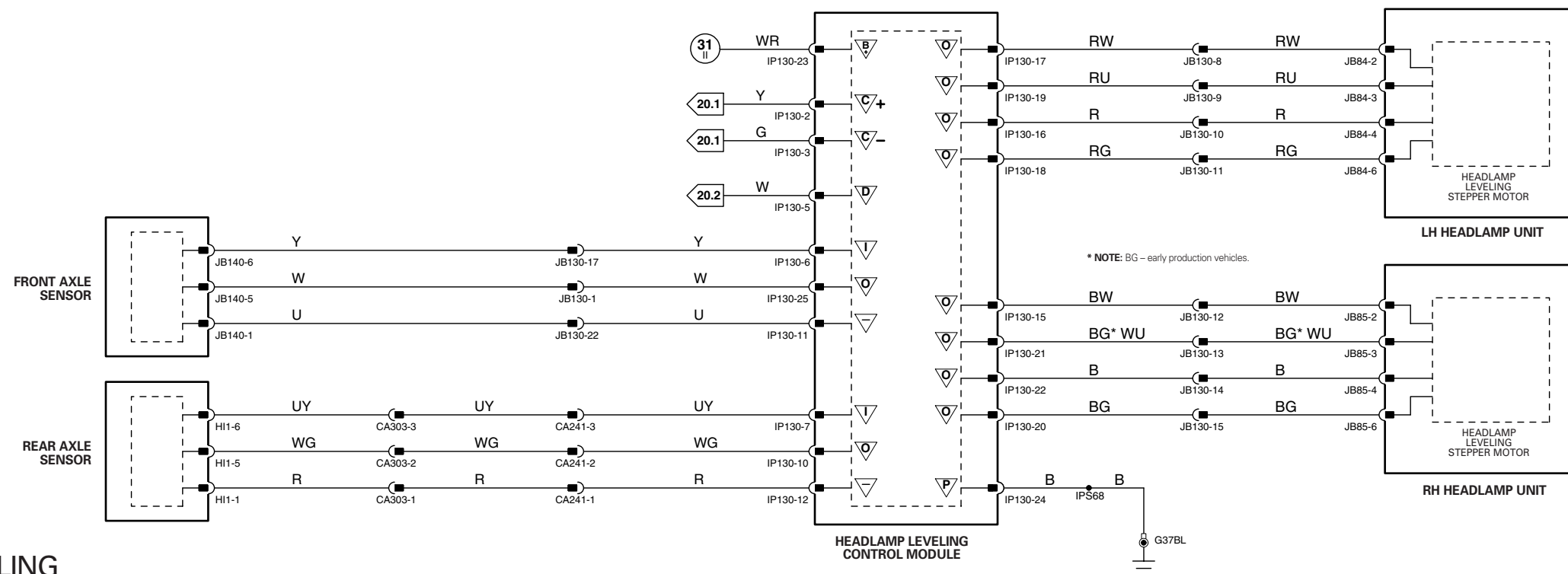
VARIANT: U.K. Trailer Towing Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: December 2001



\* NOTE: T6S2 and circuit to TT3-9 – early production vehicles only.  
 \*\* NOTE: NW – early production vehicles.



DRIVER-CONTROLLED HEADLAMP LEVELING



AUTOMATIC HEADLAMP LEVELING

1 → 13 Fig. 01.1

14 → 64 Fig. 01.2

1 → 11 Fig. 01.3

12 → 63 Fig. 01.4

64 → 74 Fig. 01.5

75 → 96 Fig. 01.6

▽ Input

B Battery Voltage

▽ Sensor/Signal Supply V

▽ Sensor/Signal Ground

▽ Output

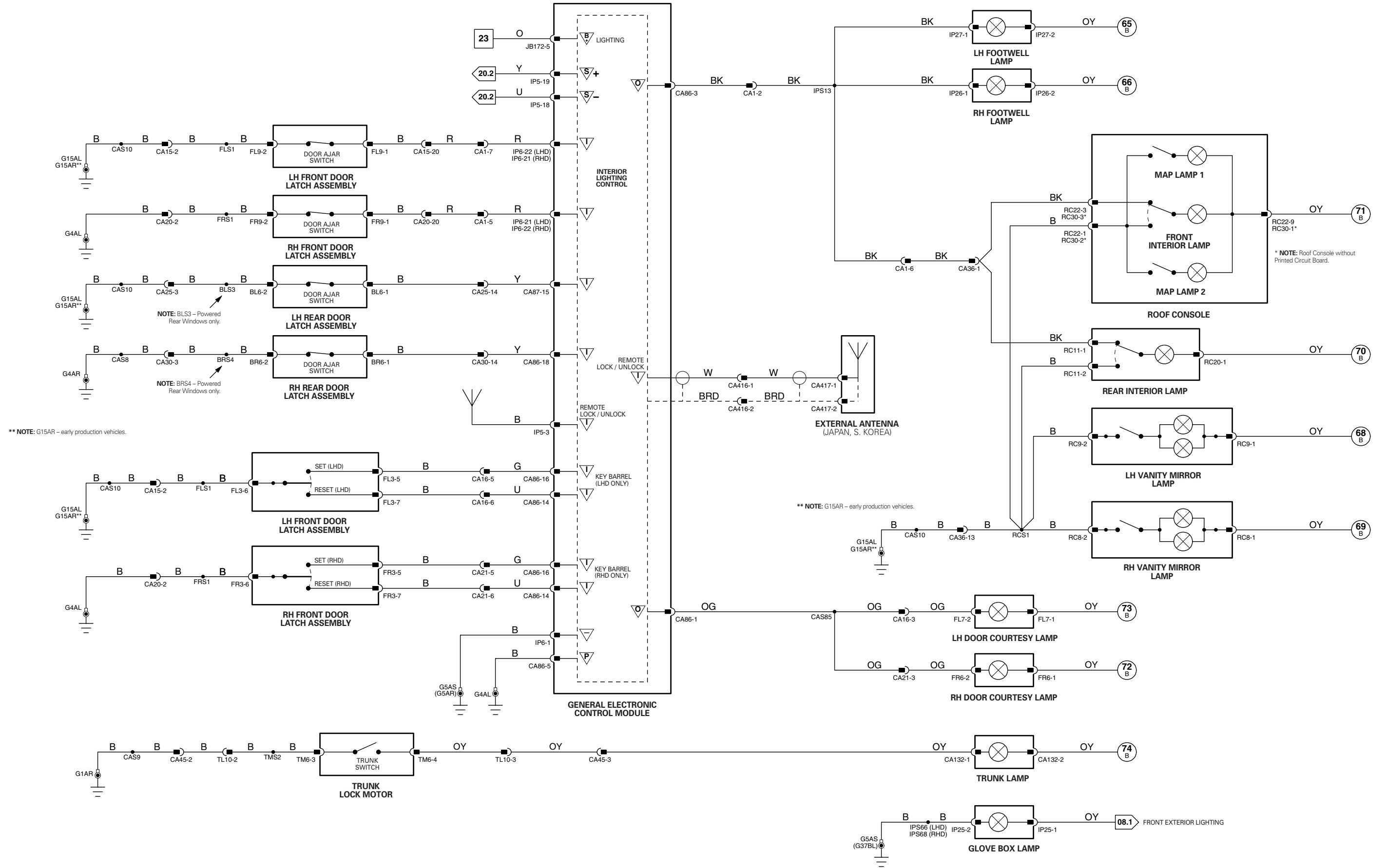
P Power Ground

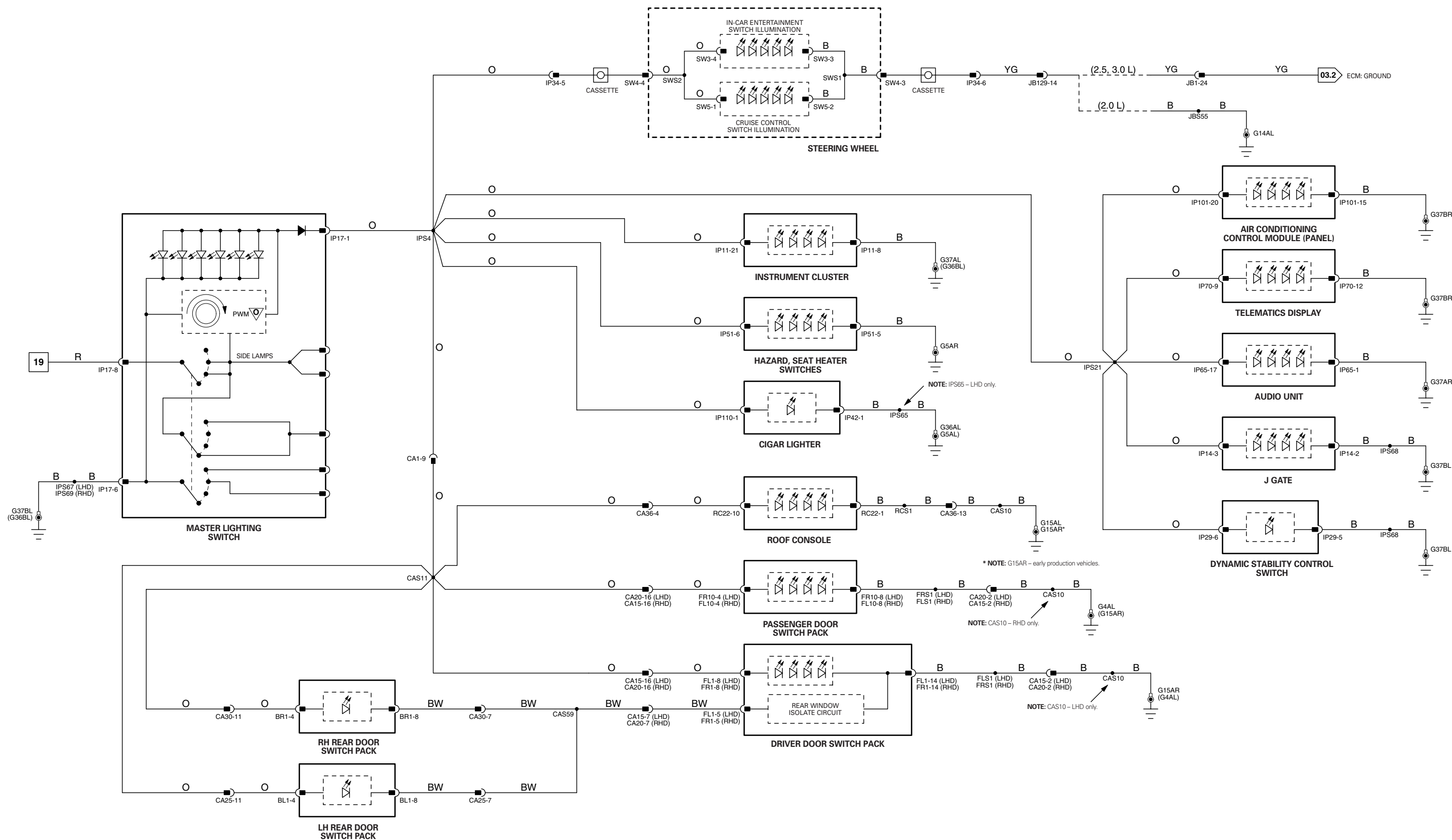
▽ SCP

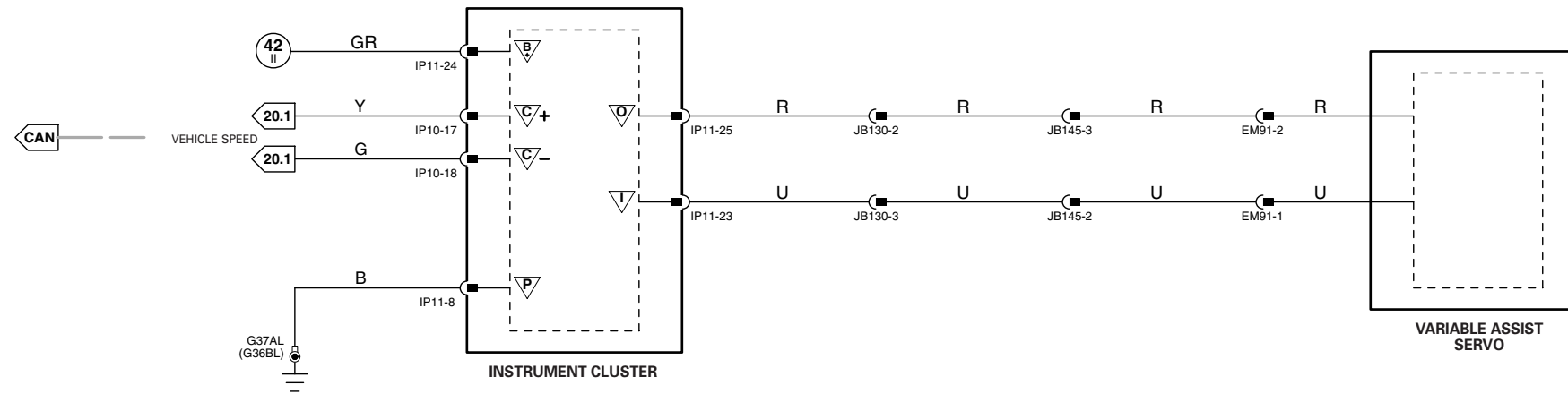
▽ D2B Network

▽ Serial and Encoded Data

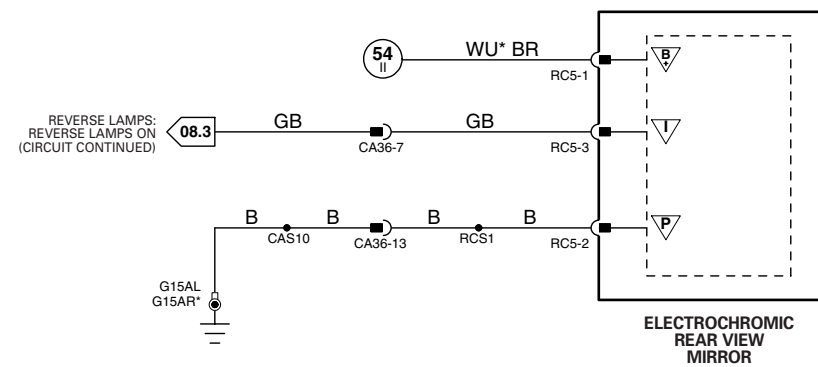
VARIANT: Headlamp Leveling Vehicles  
VIN RANGE: All  
DATE OF ISSUE: December 2001







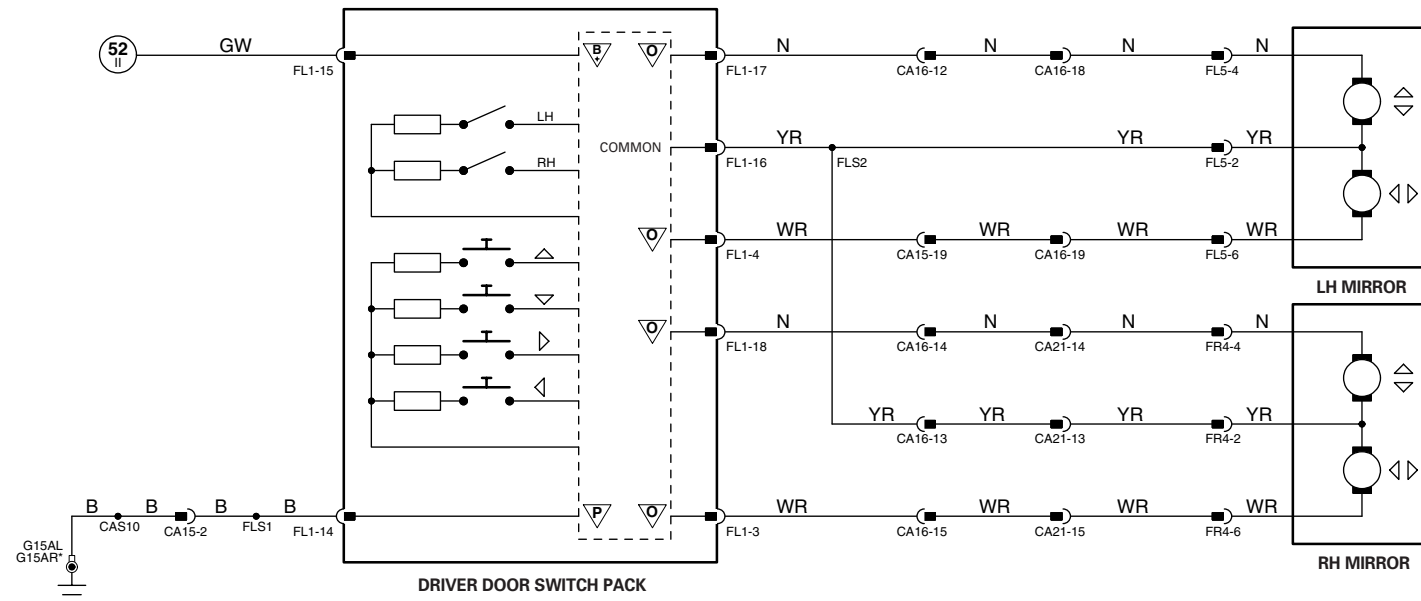
### VARIABLE ASSIST STEERING



\* NOTE: G15AR, WU – early production vehicles.

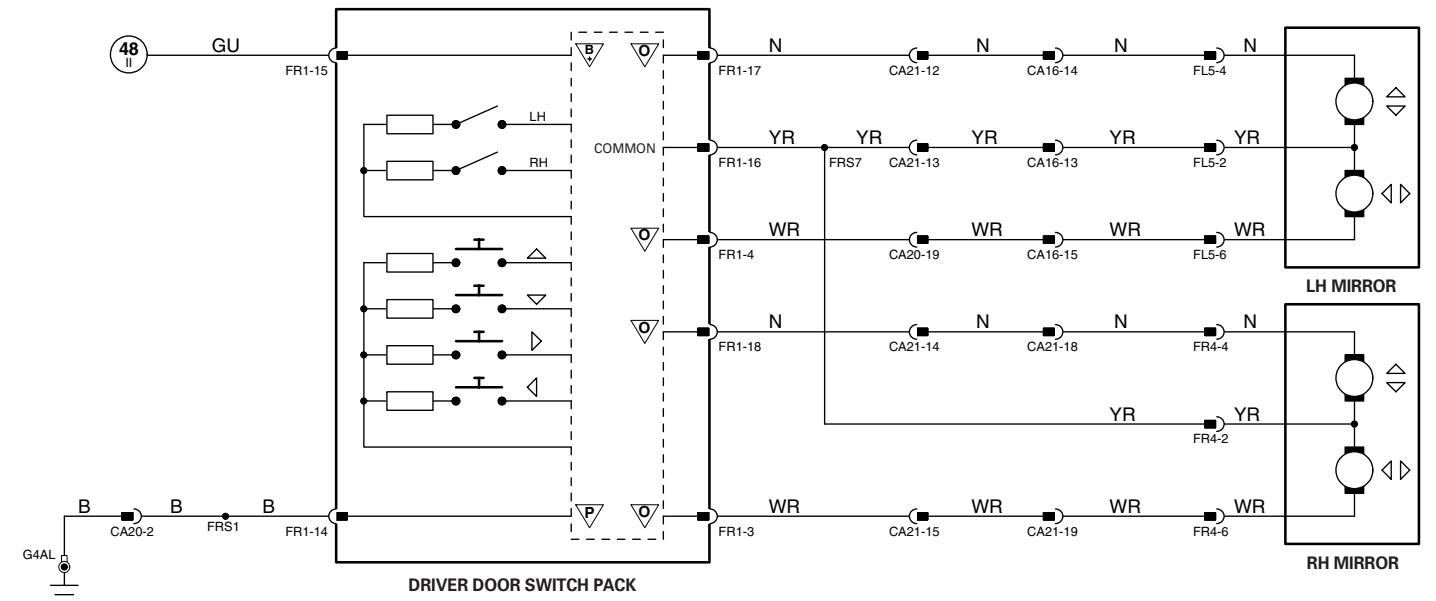
### ELECTROCHROMIC REAR VIEW MIRROR



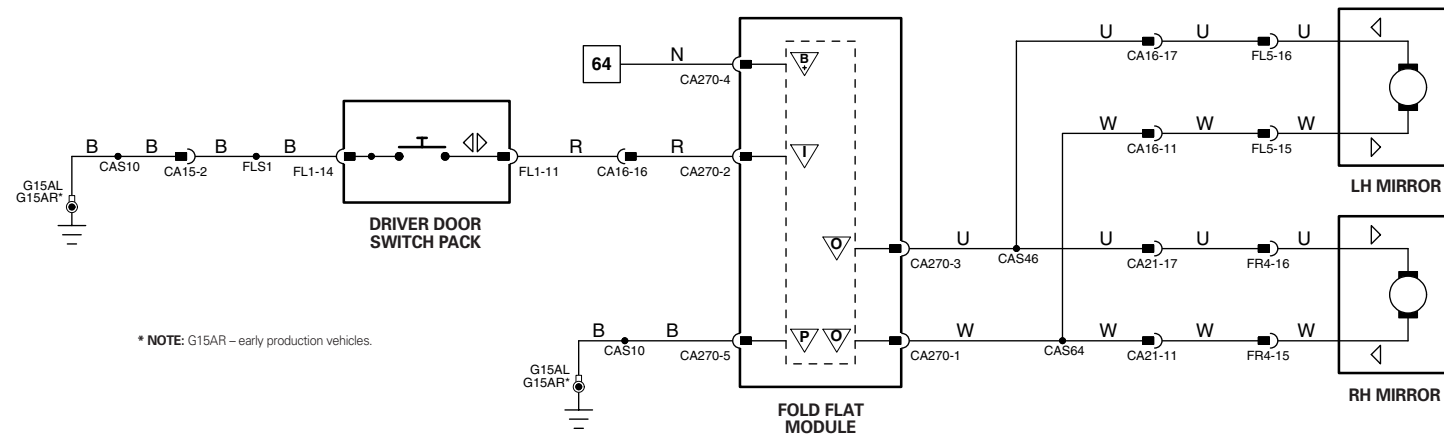


\* NOTE: G15AR - early production vehicles.

DOOR MIRROR MOVEMENT: LHD

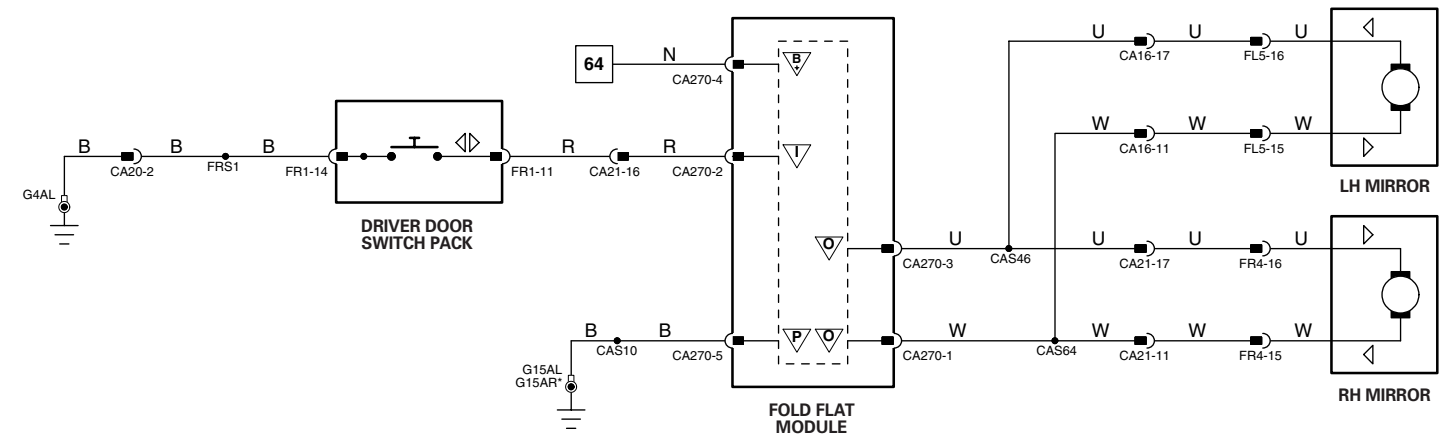


DOOR MIRROR MOVEMENT: RHD



\* NOTE: G15AR - early production vehicles.

DOOR MIRROR FOLD: LHD



\* NOTE: G15AR - early production vehicles.

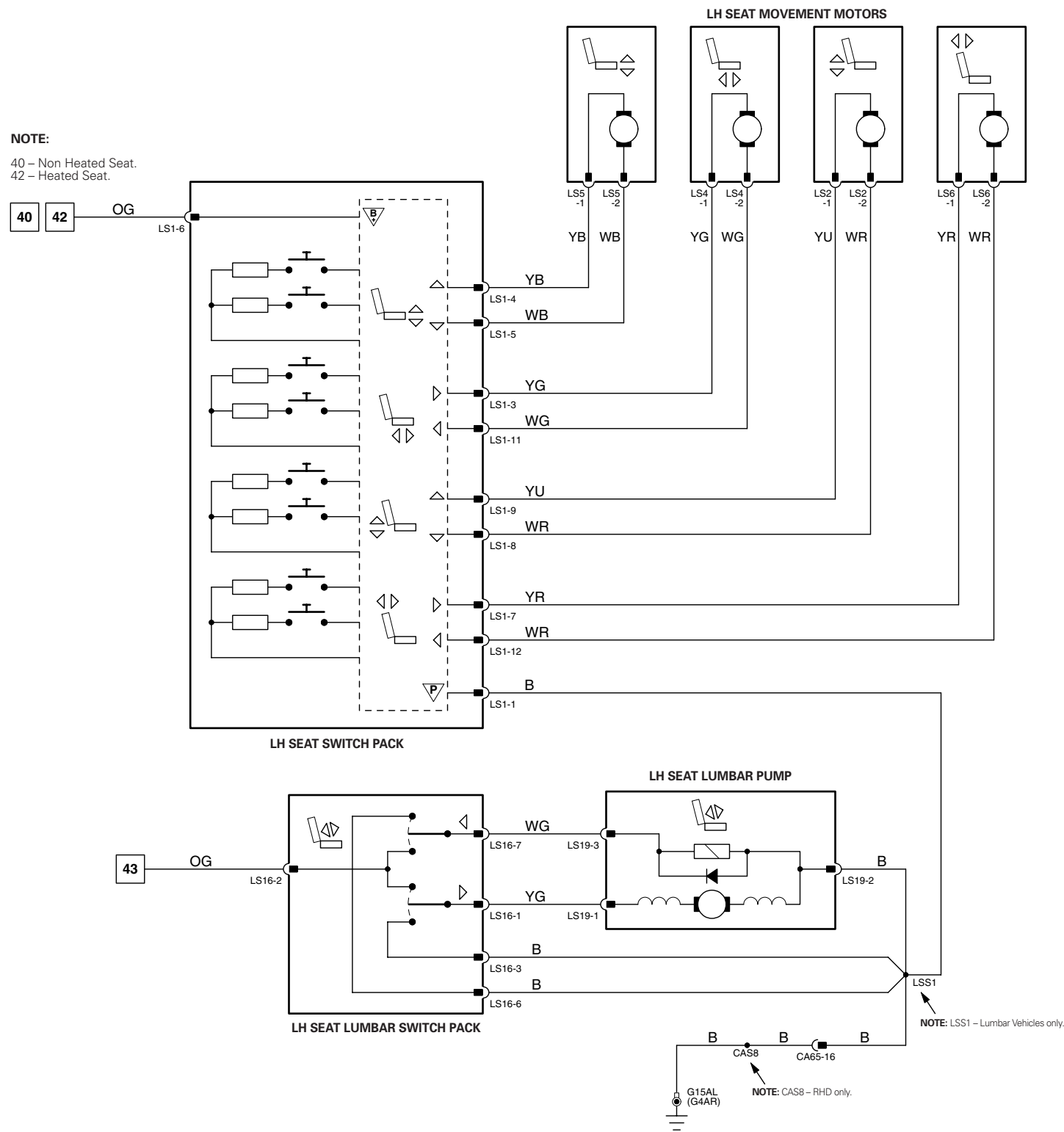
DOOR MIRROR FOLD: RHD

NOTE: Refer to Figures 06.1 and 06.2 for Mirror Heaters.



NOTE:

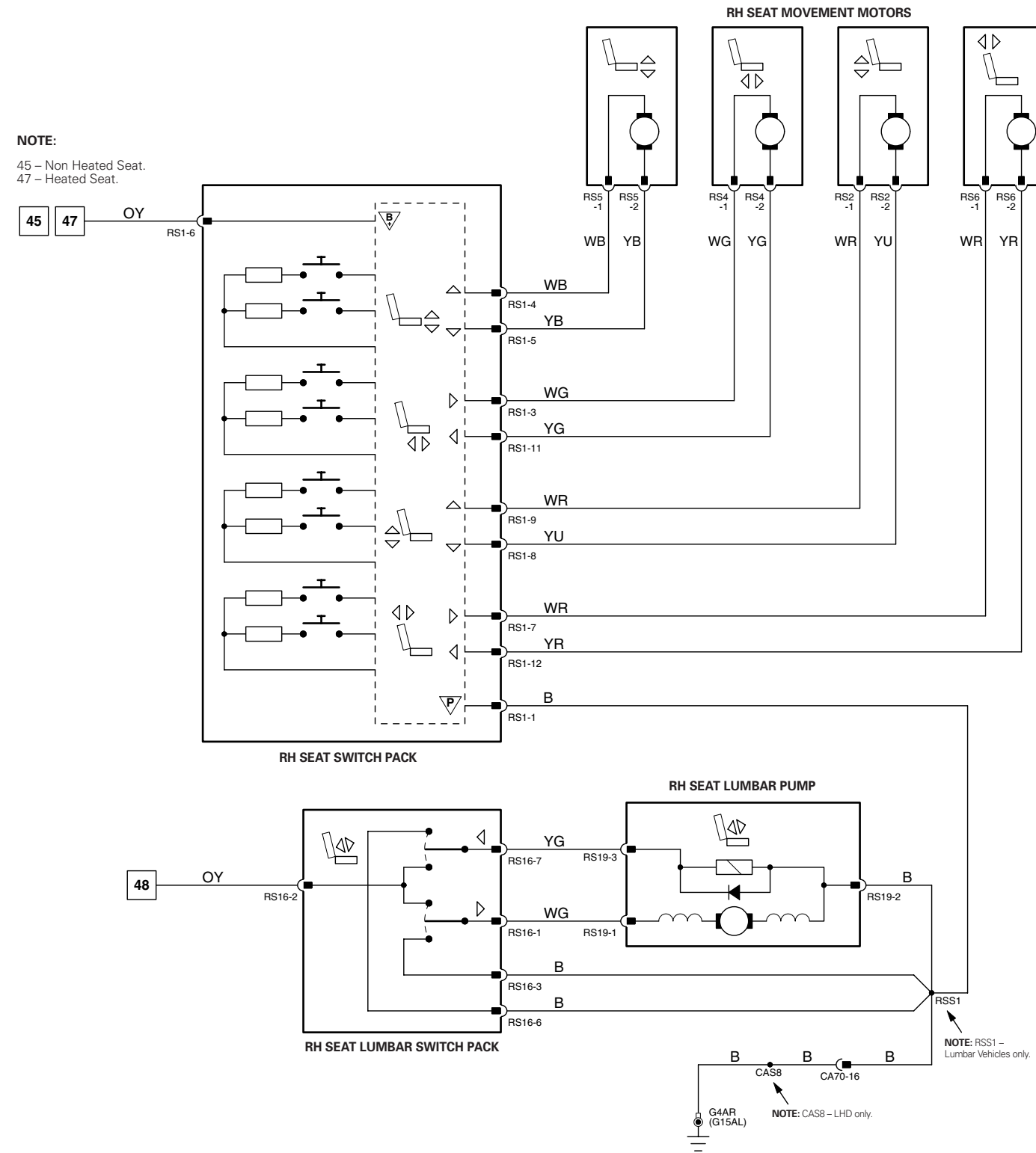
40 - Non Heated Seat.  
42 - Heated Seat.



LH SEAT

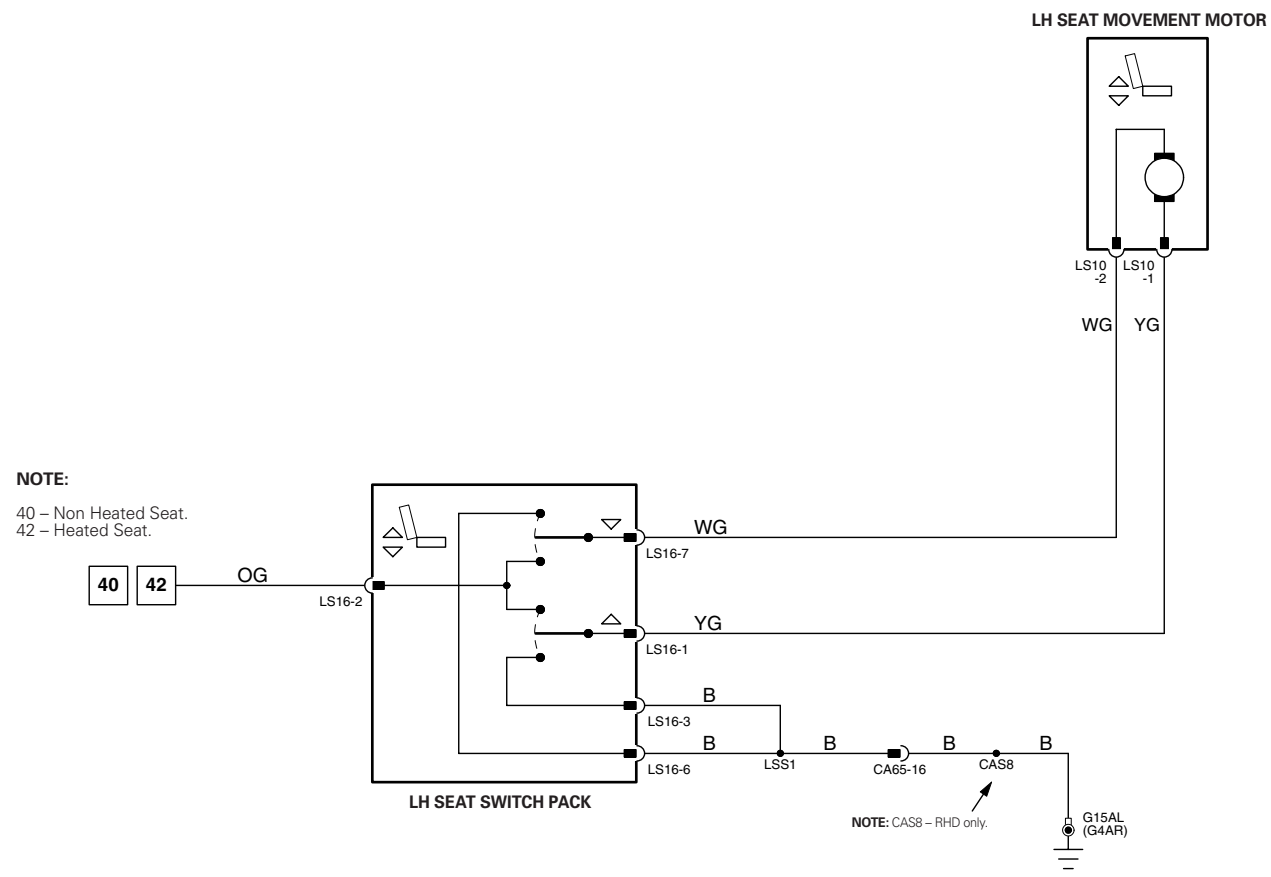
NOTE:

45 - Non Heated Seat.  
47 - Heated Seat.

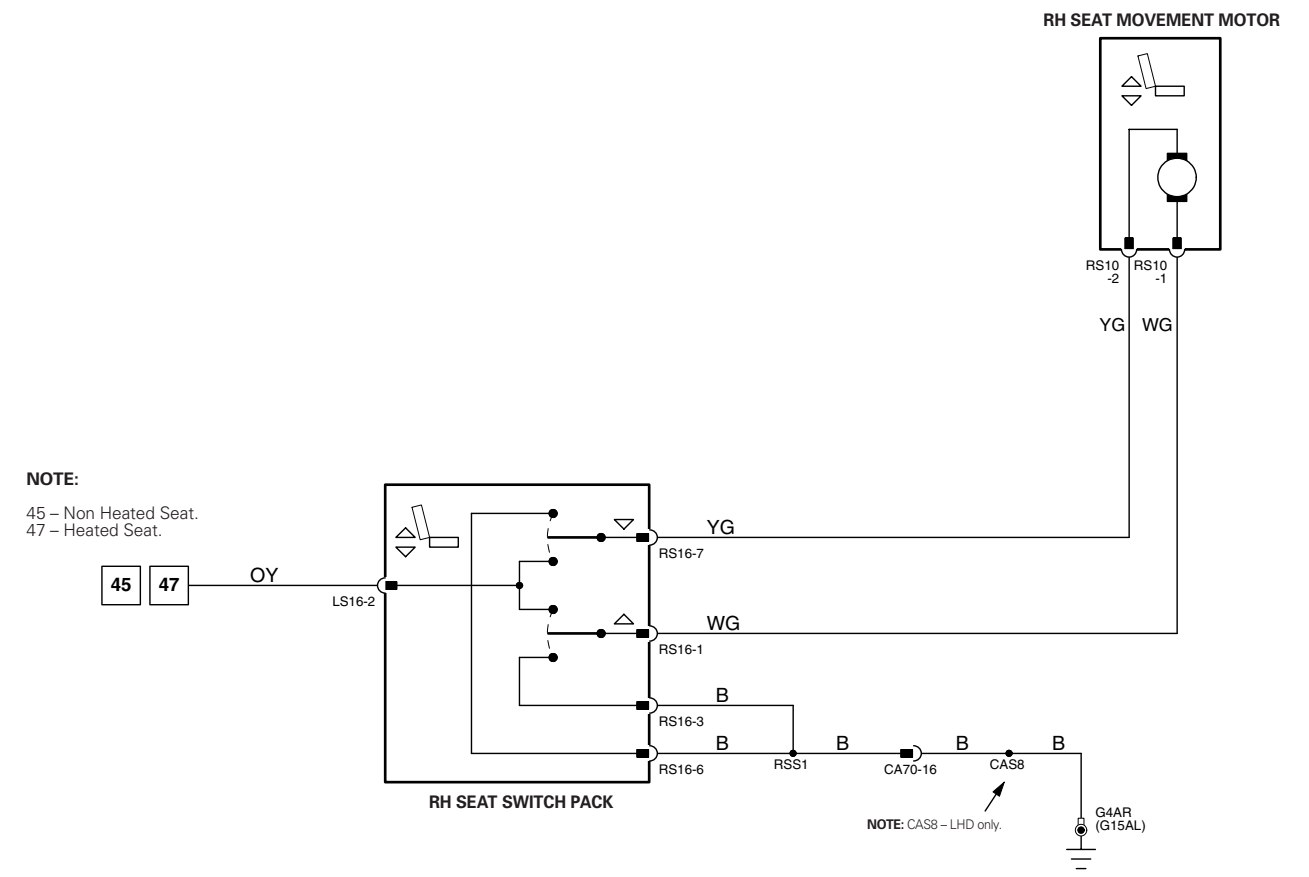


RH SEAT

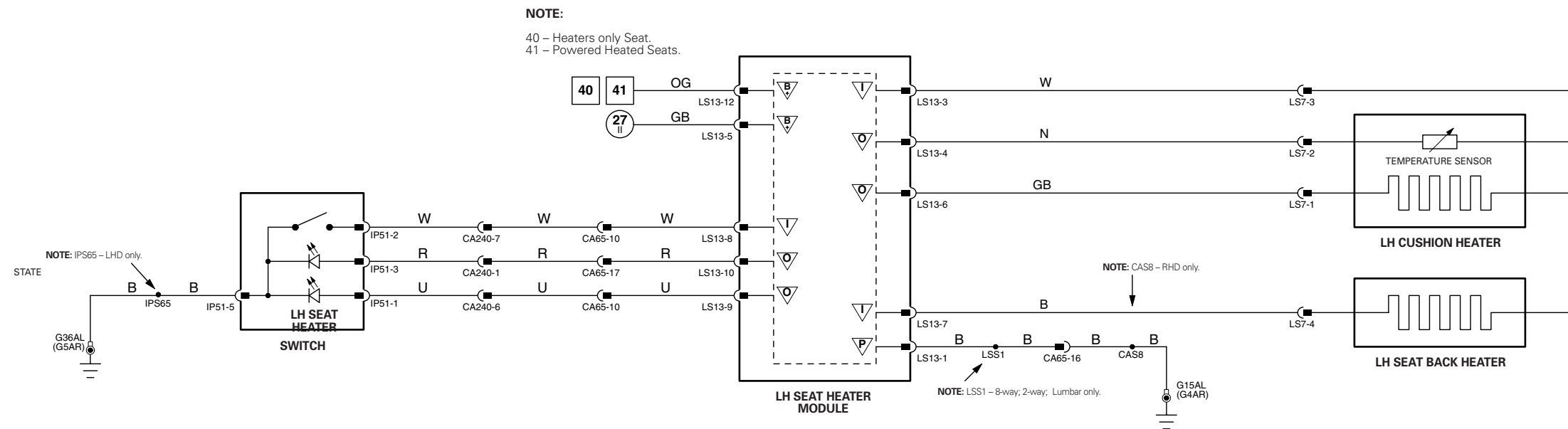
NOTE: Powered Lumbar Circuit and components - Powered Lumbar Seats only.



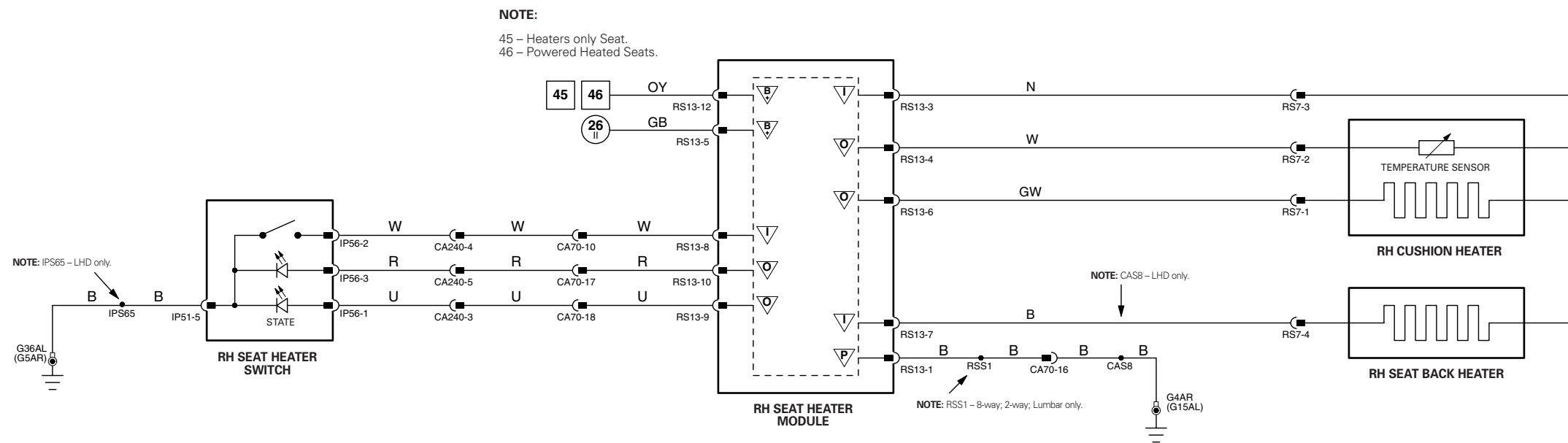
LH SEAT



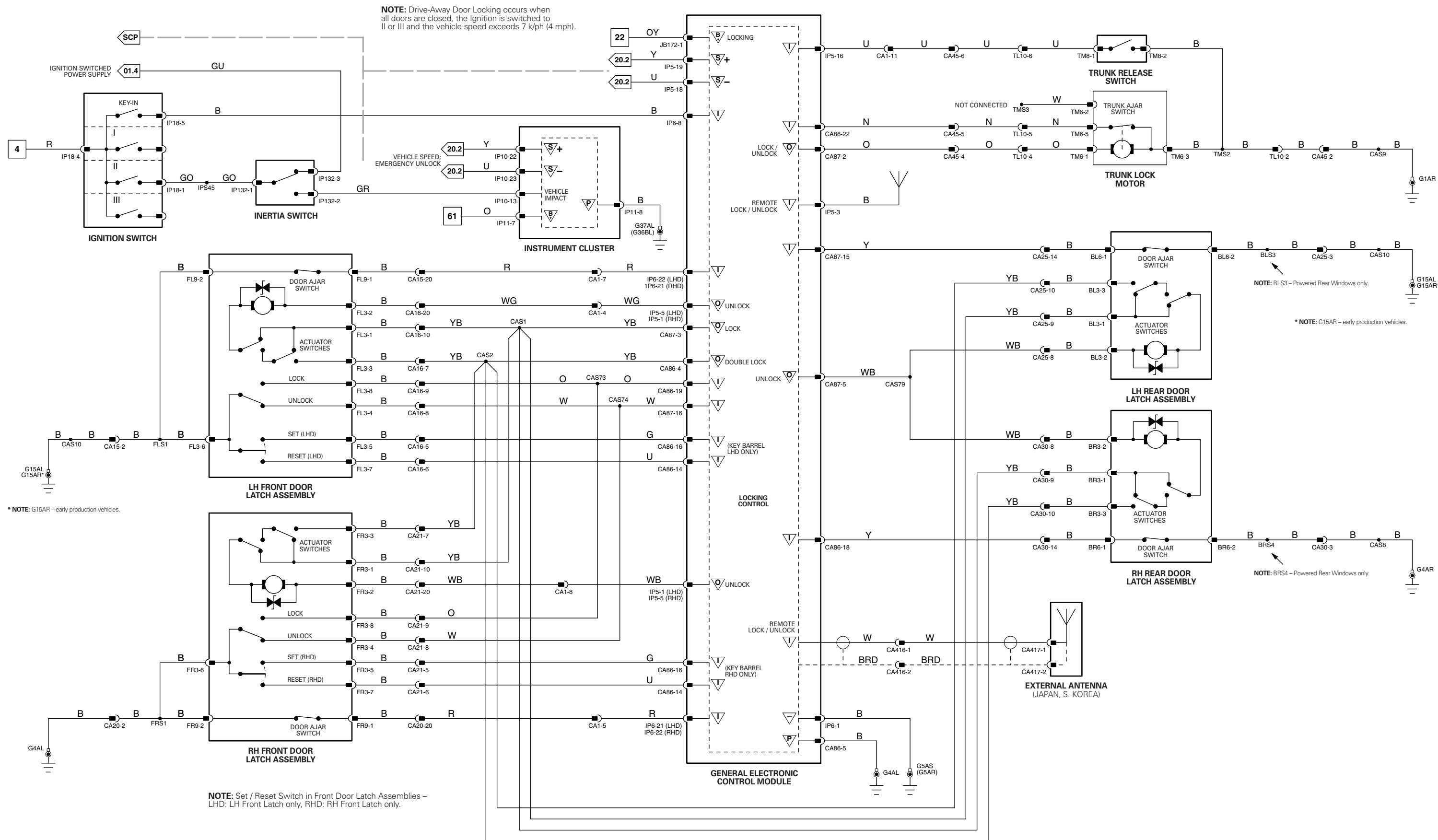
RH SEAT



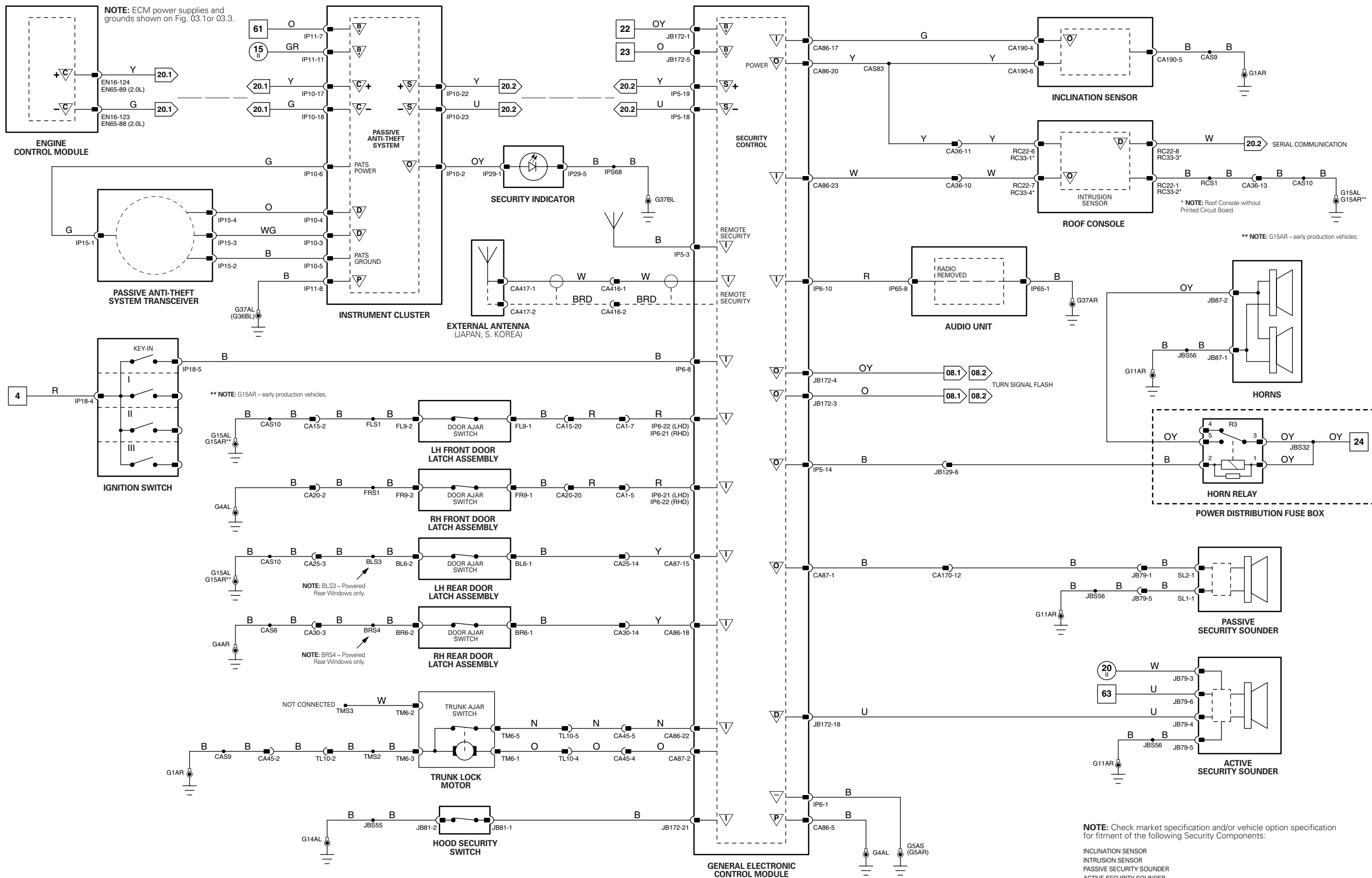
LH SEAT

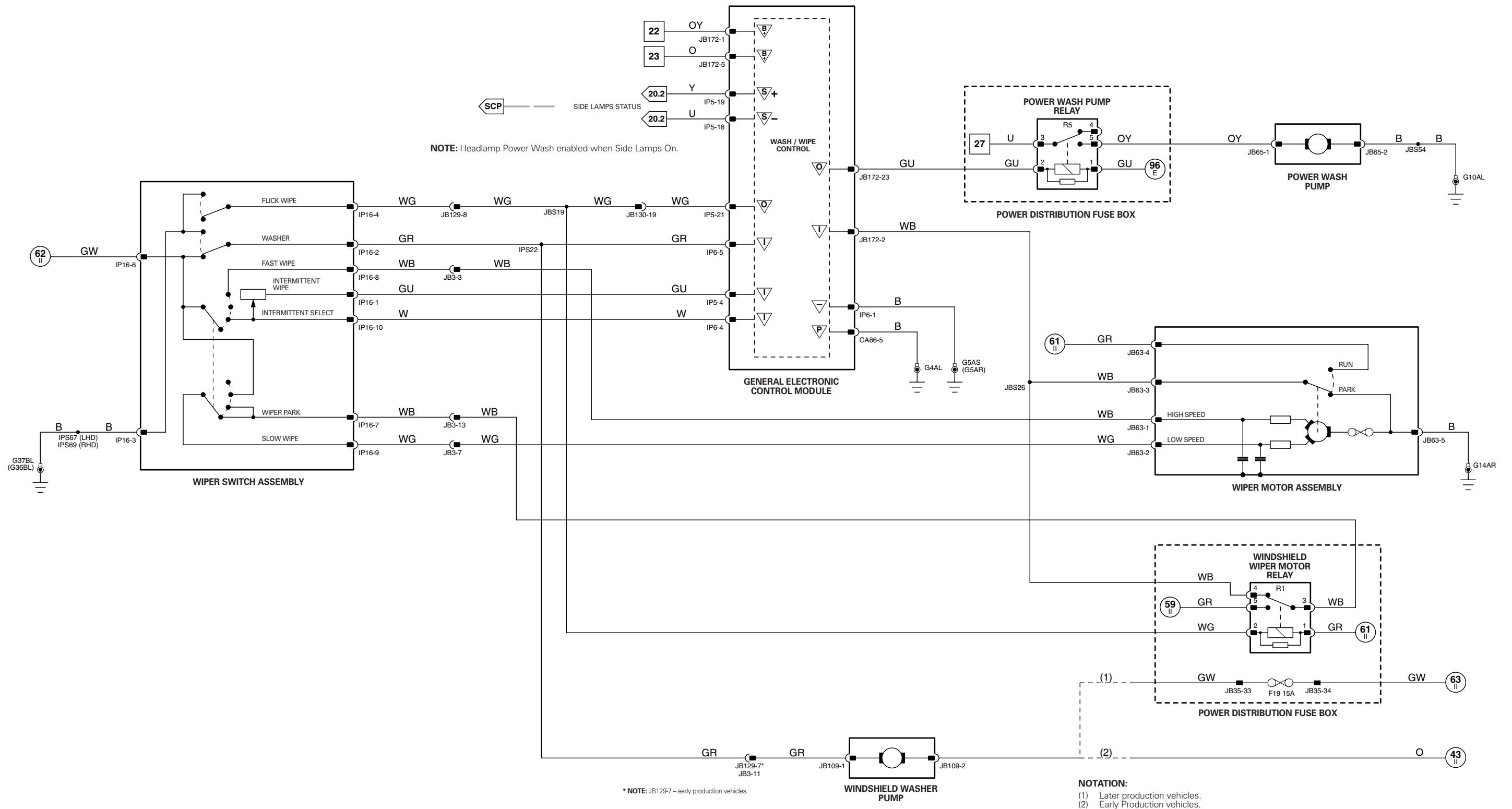


RH SEAT

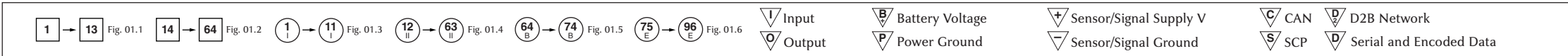
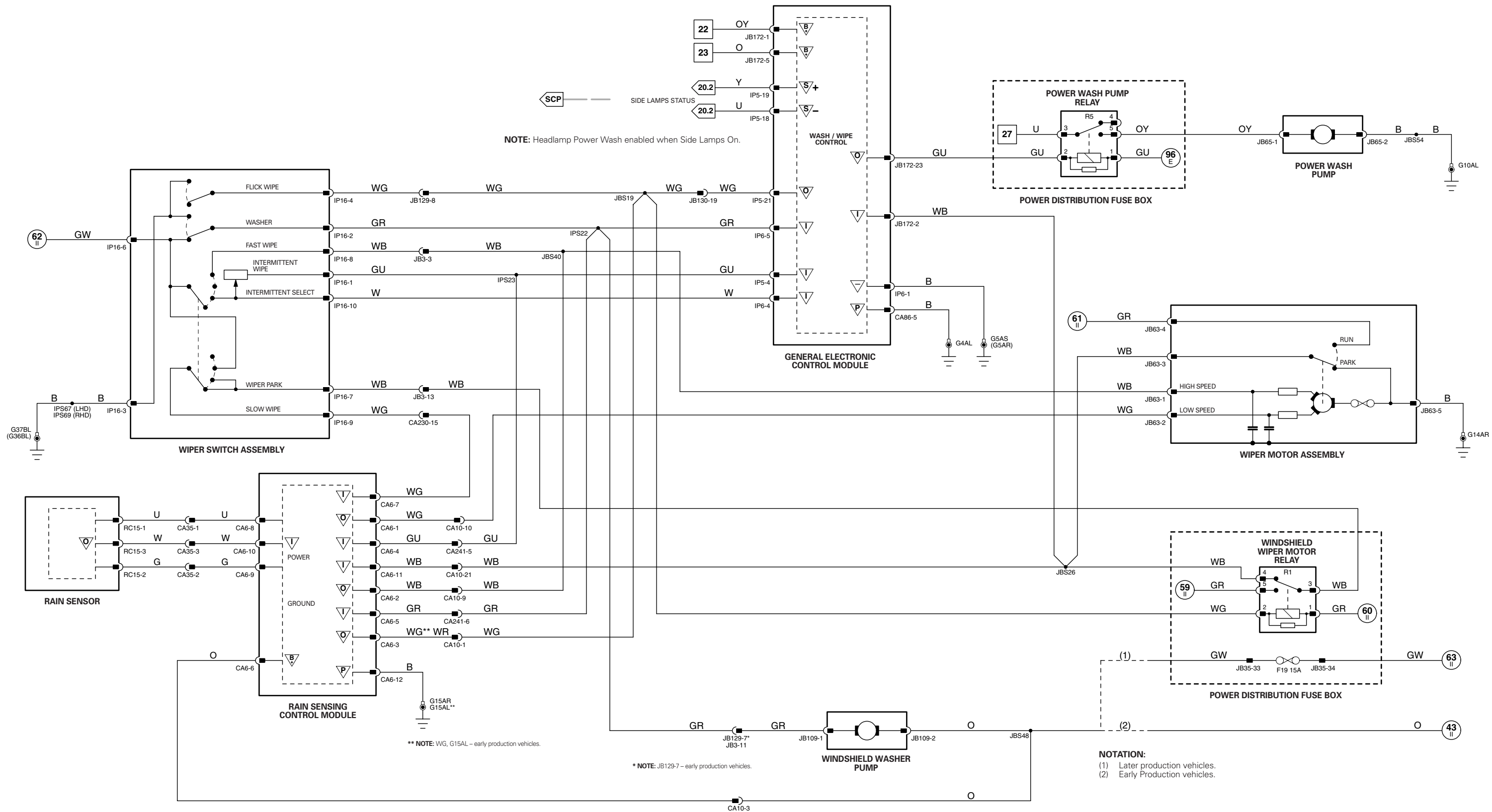










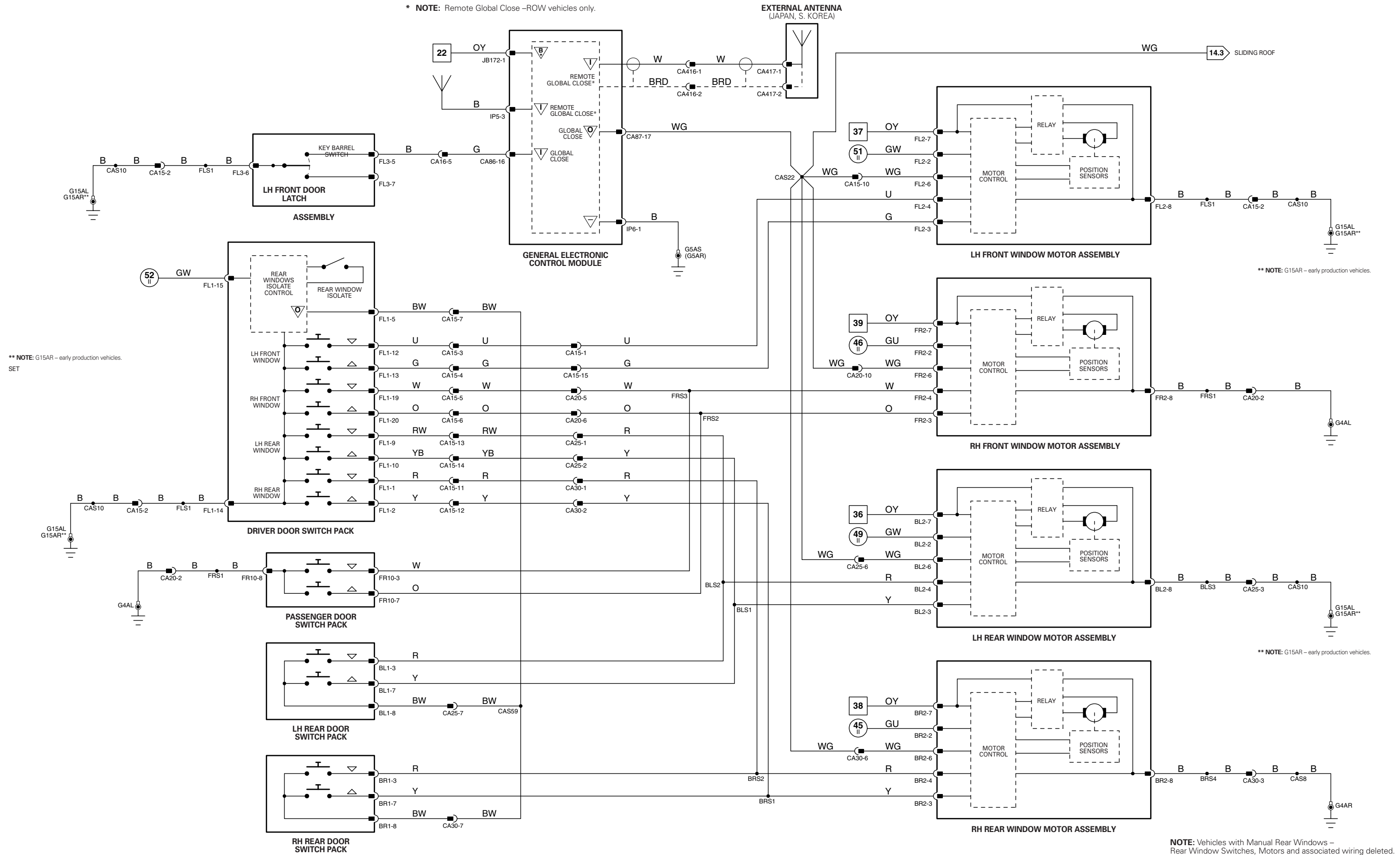


**VARIANT:** Rain Sensing Vehicles  
**VIN RANGE:** All  
**DATE OF ISSUE:** December 2001



\* NOTE: Remote Global Close - ROW vehicles only.

EXTERNAL ANTENNA (JAPAN, S. KOREA)

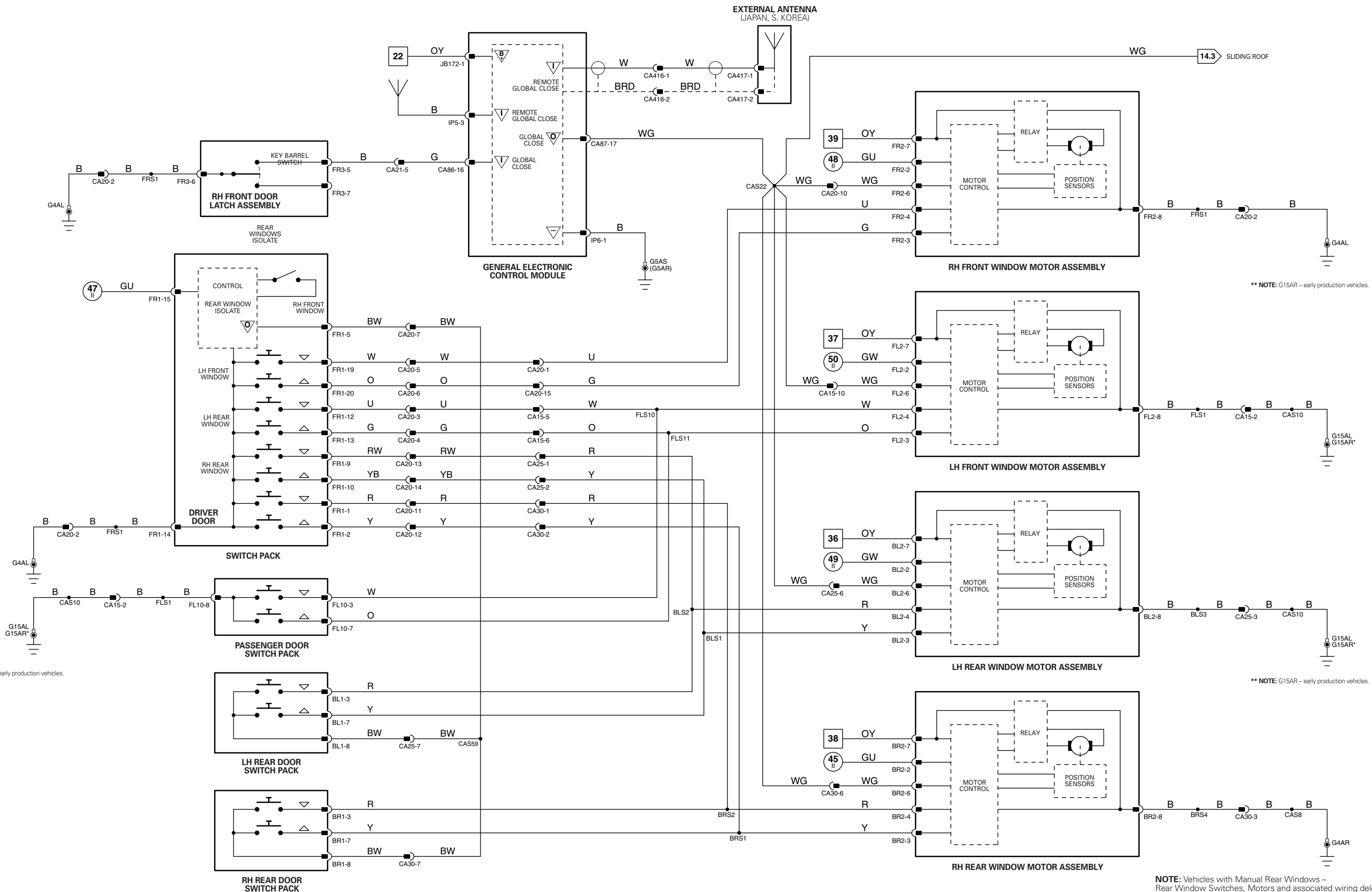


\*\* NOTE: G15AR - early production vehicles. SET

\*\* NOTE: G15AR - early production vehicles.

\*\* NOTE: G15AR - early production vehicles.

NOTE: Vehicles with Manual Rear Windows - Rear Window Switches, Motors and associated wiring deleted.

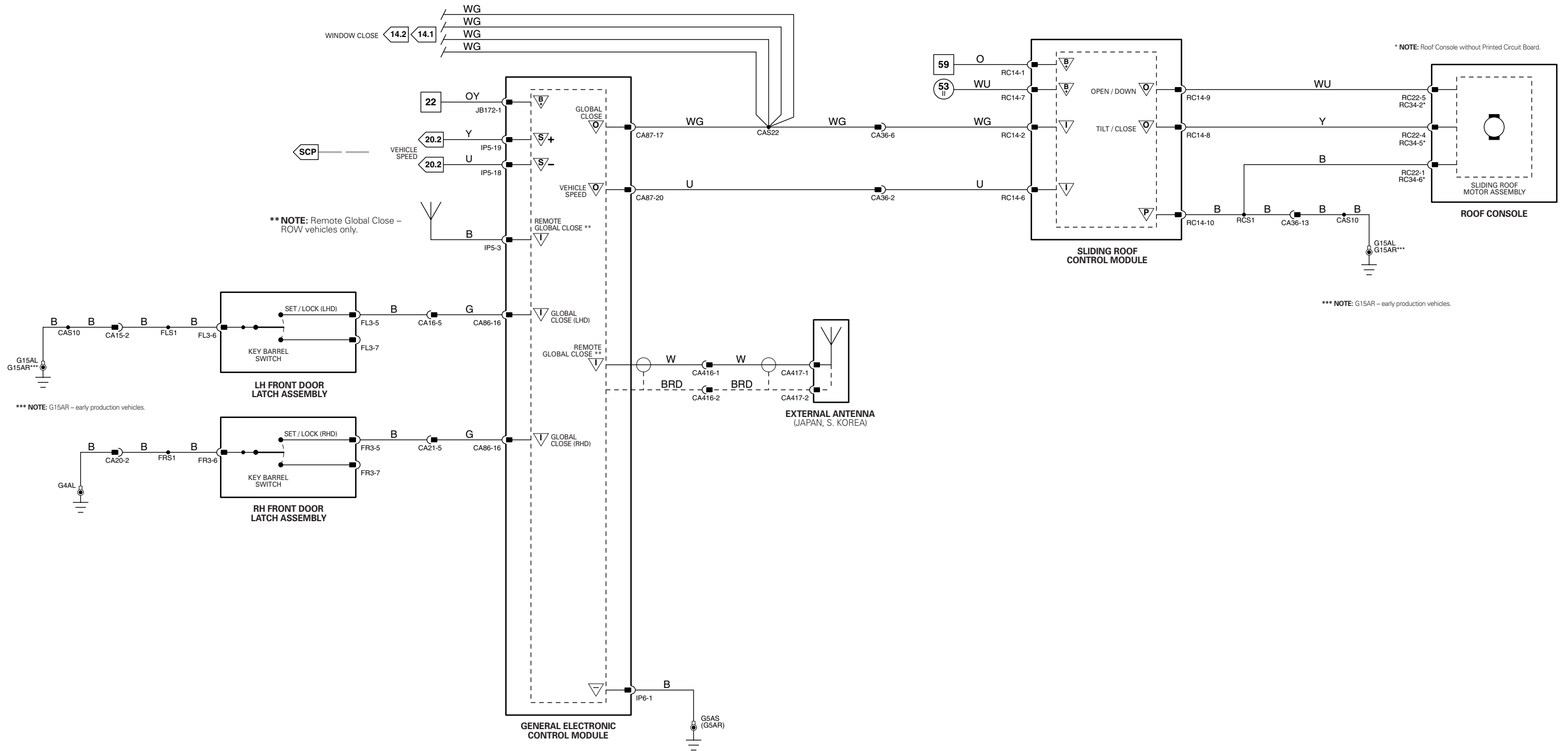


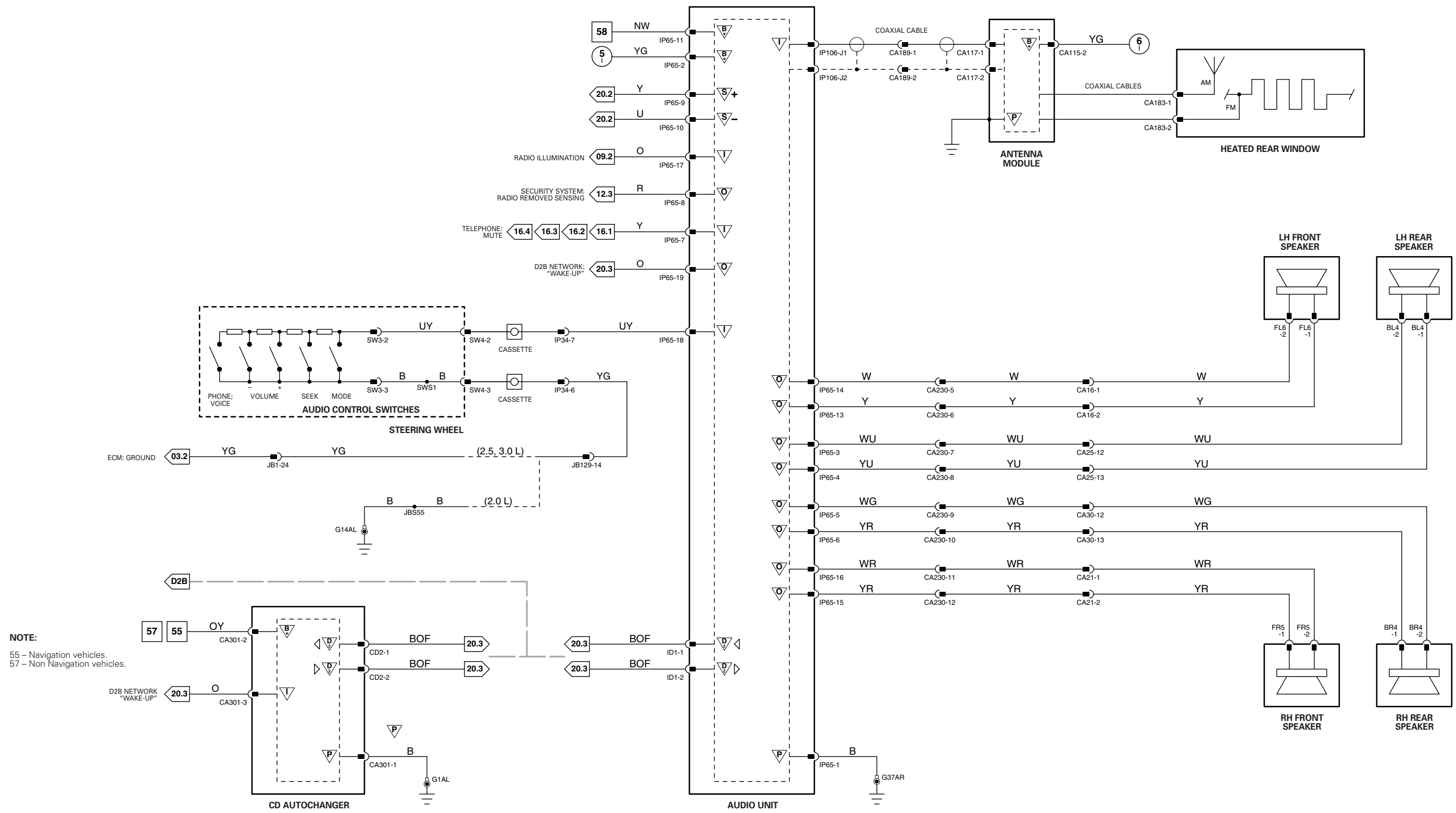
\*\* NOTE: G15AR – early production vehicles. SET

\*\* NOTE: G15AR – early production vehicles.

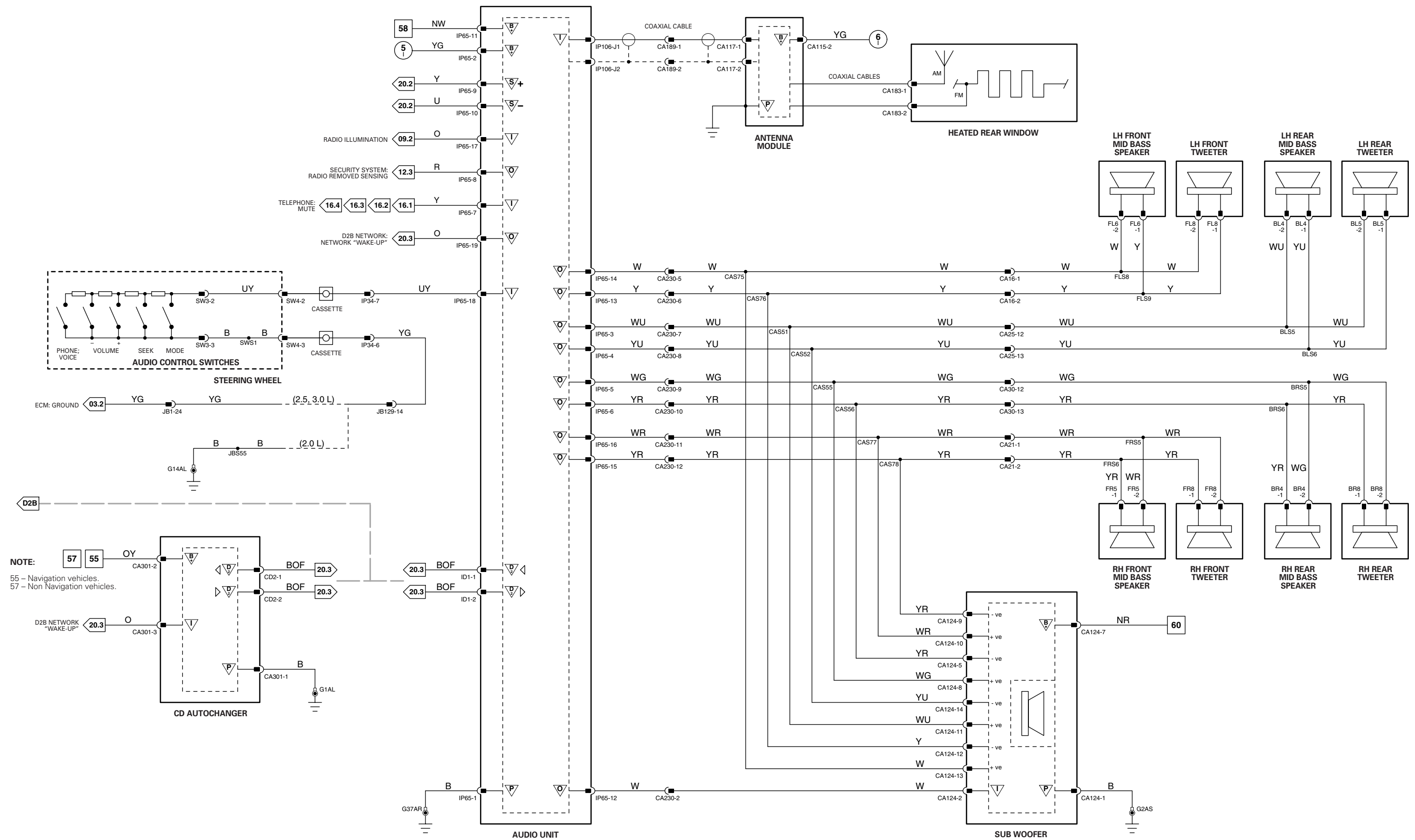
\*\* NOTE: G15AR – early production vehicles.

NOTE: Vehicles with Manual Rear Windows – Rear Window Switches, Motors and associated wiring deleted.

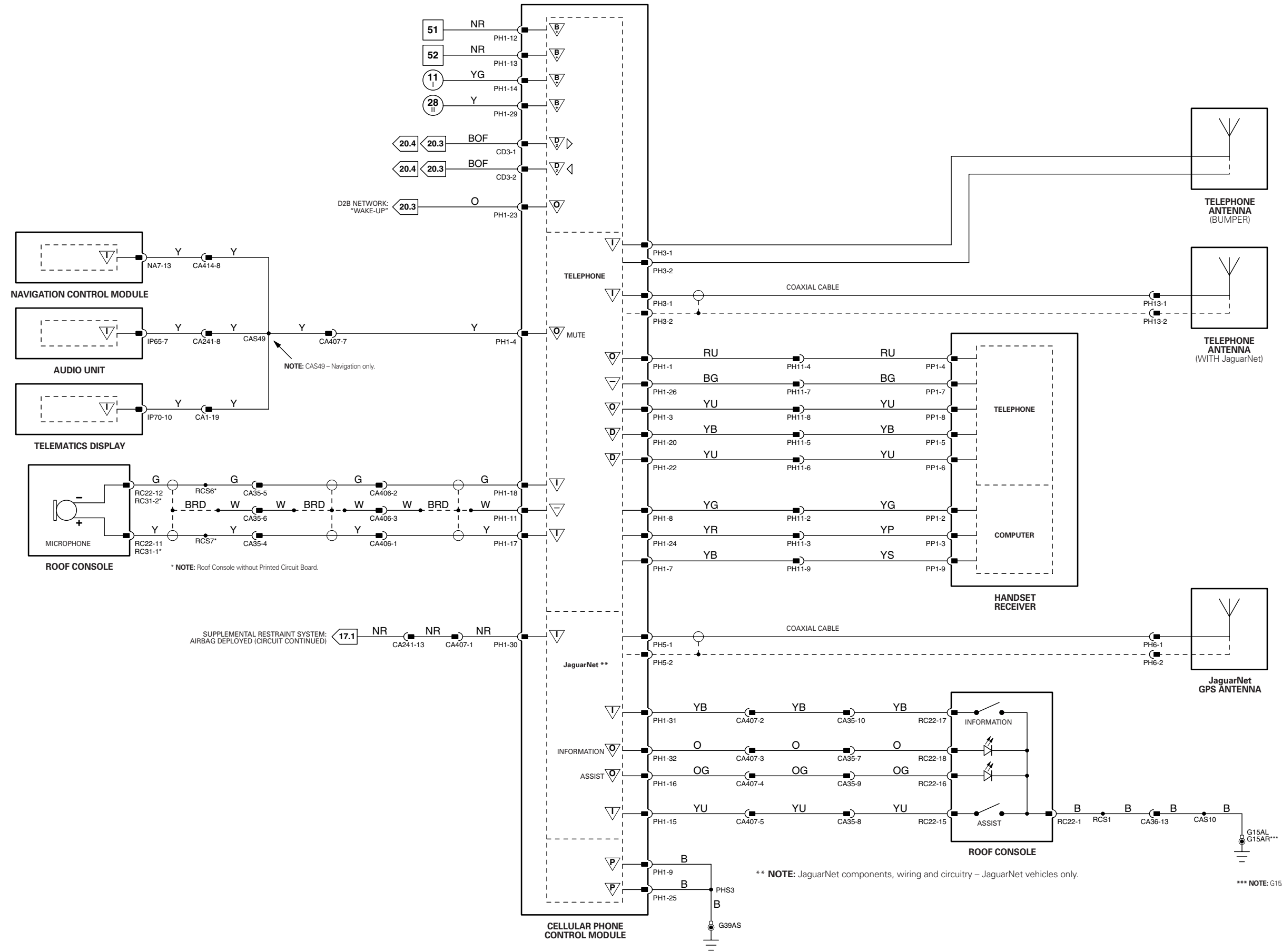


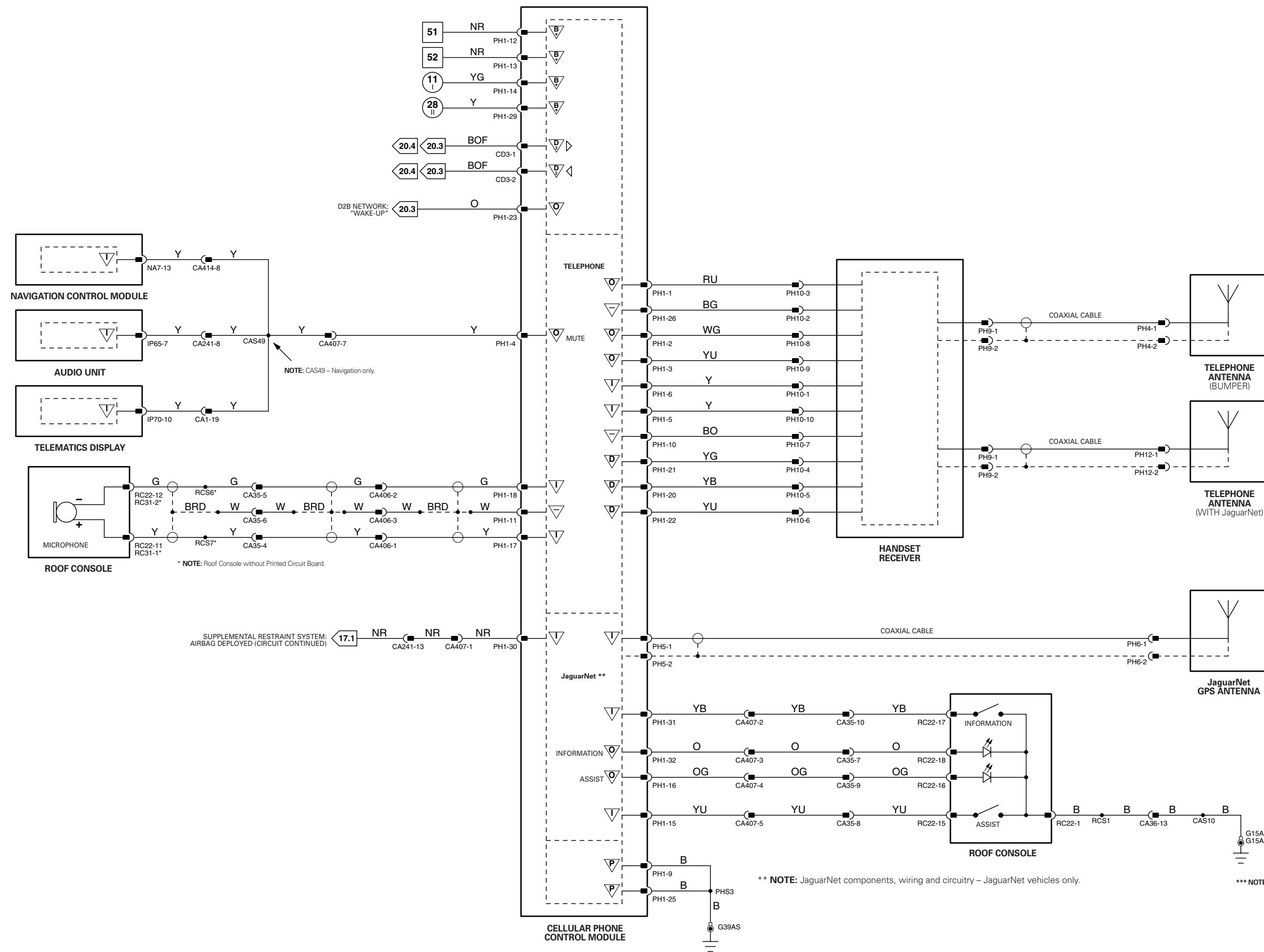


**NOTE:**  
 55 - Navigation vehicles.  
 57 - Non Navigation vehicles.

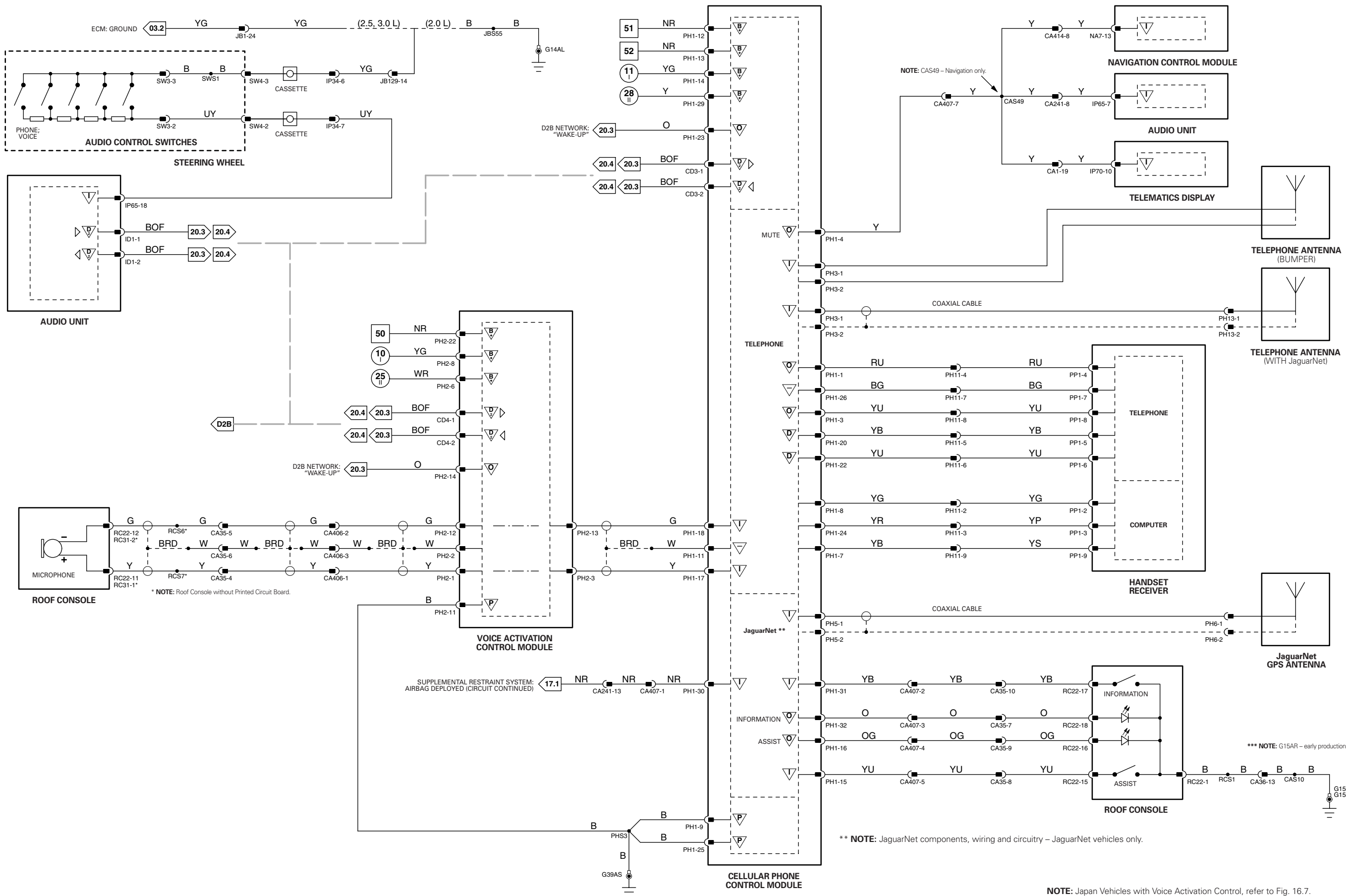


**NOTE:**  
 55 - Navigation vehicles.  
 57 - Non Navigation vehicles.



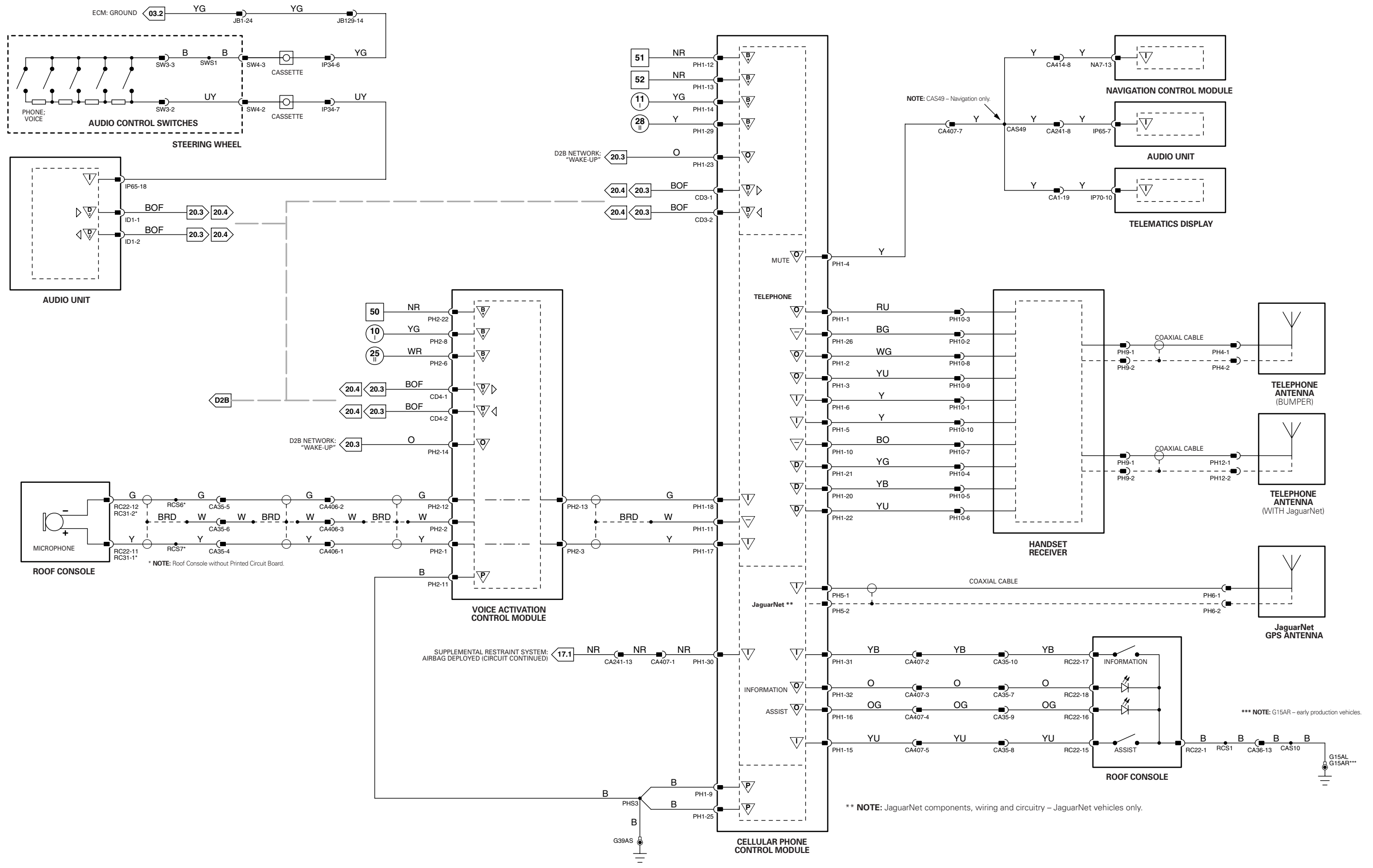


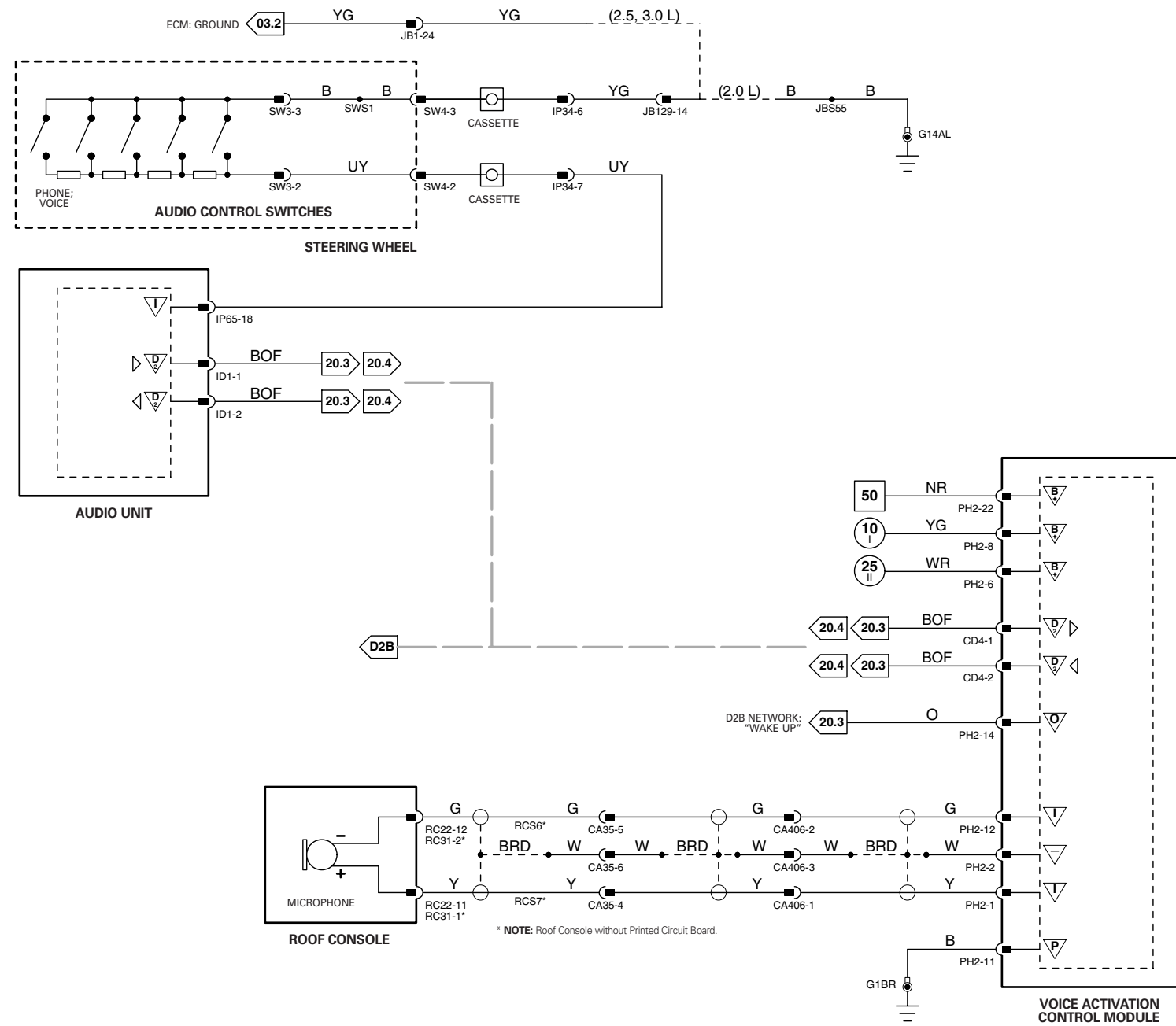




\*\* NOTE: JaguarNet components, wiring and circuitry - JaguarNet vehicles only.

NOTE: Japan Vehicles with Voice Activation Control, refer to Fig. 16.7.



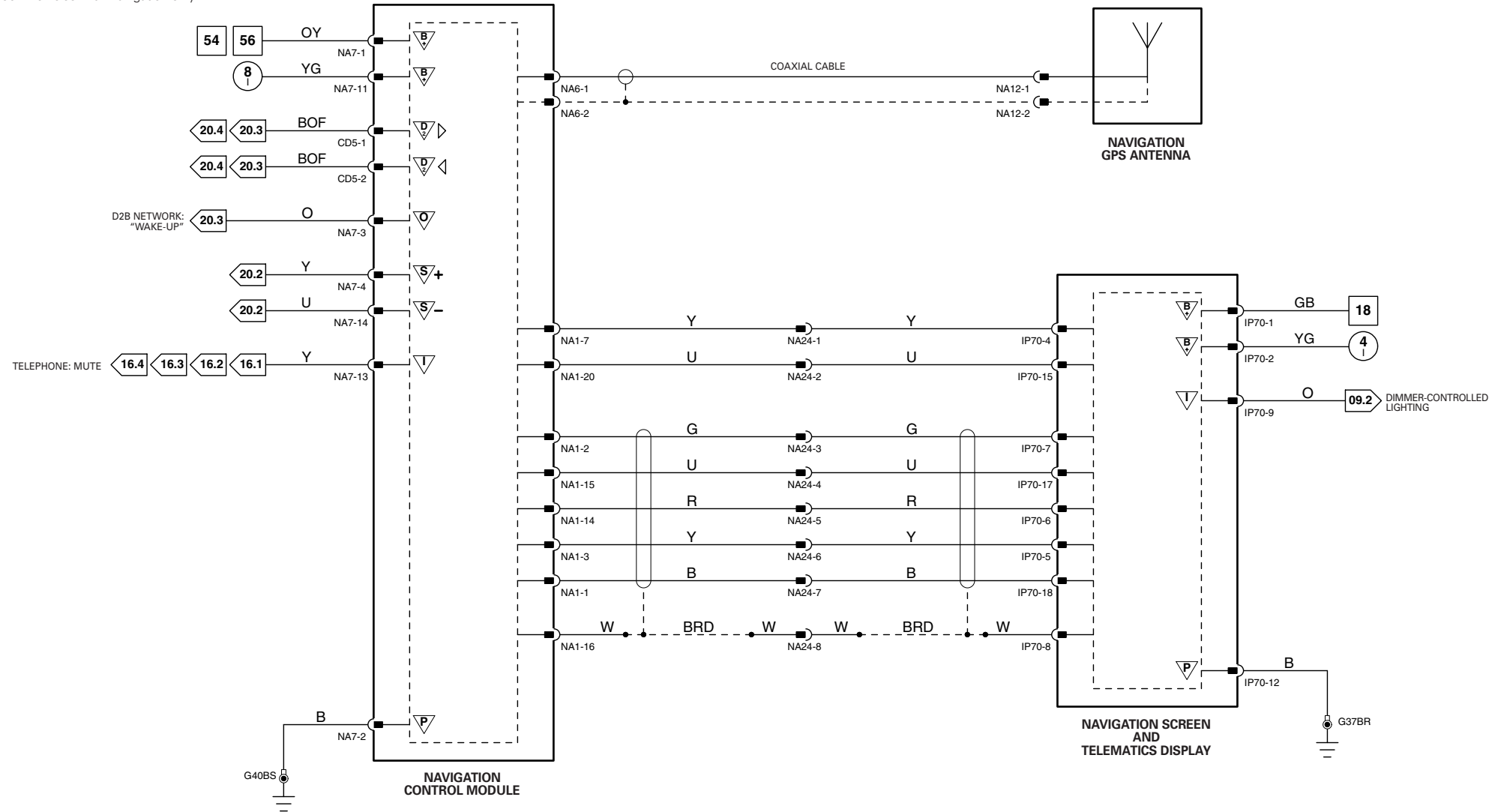


NOTE: Japan Vehicles with Voice Activation Control, refer to Fig. 16.7.



NOTE:

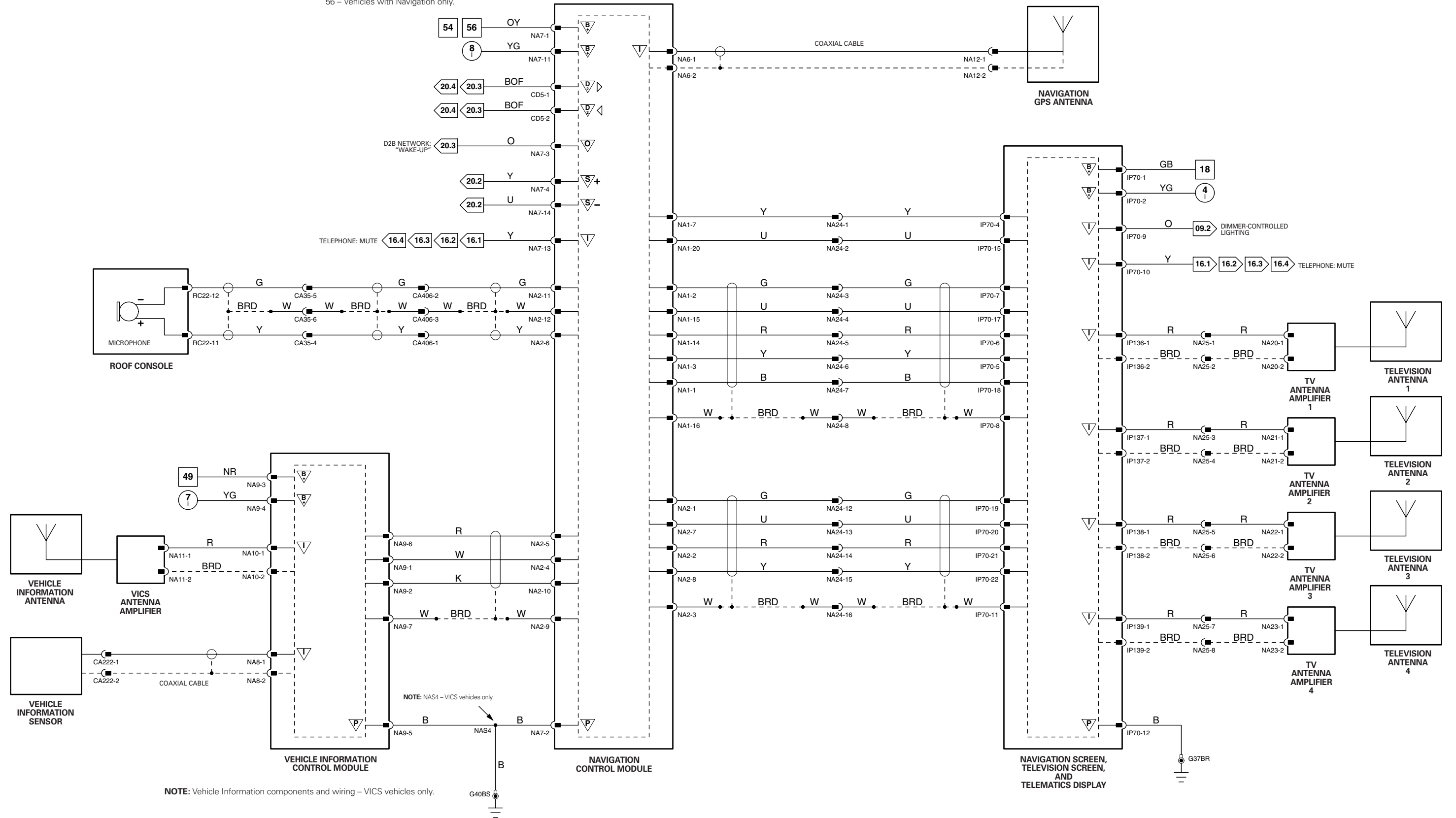
54 – Vehicles with Navigation and CD Autochanger.  
56 – Vehicles with Navigation only.

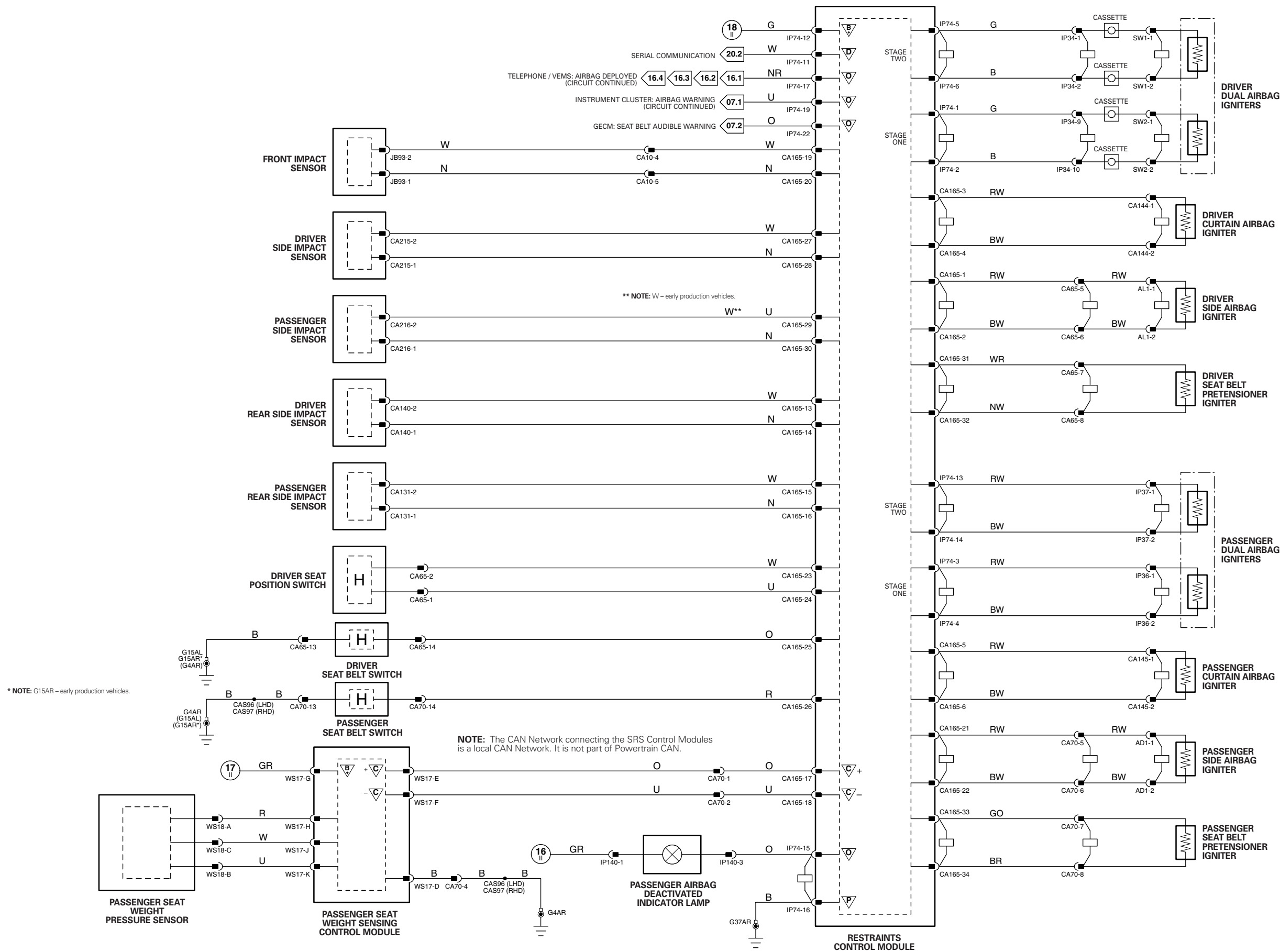


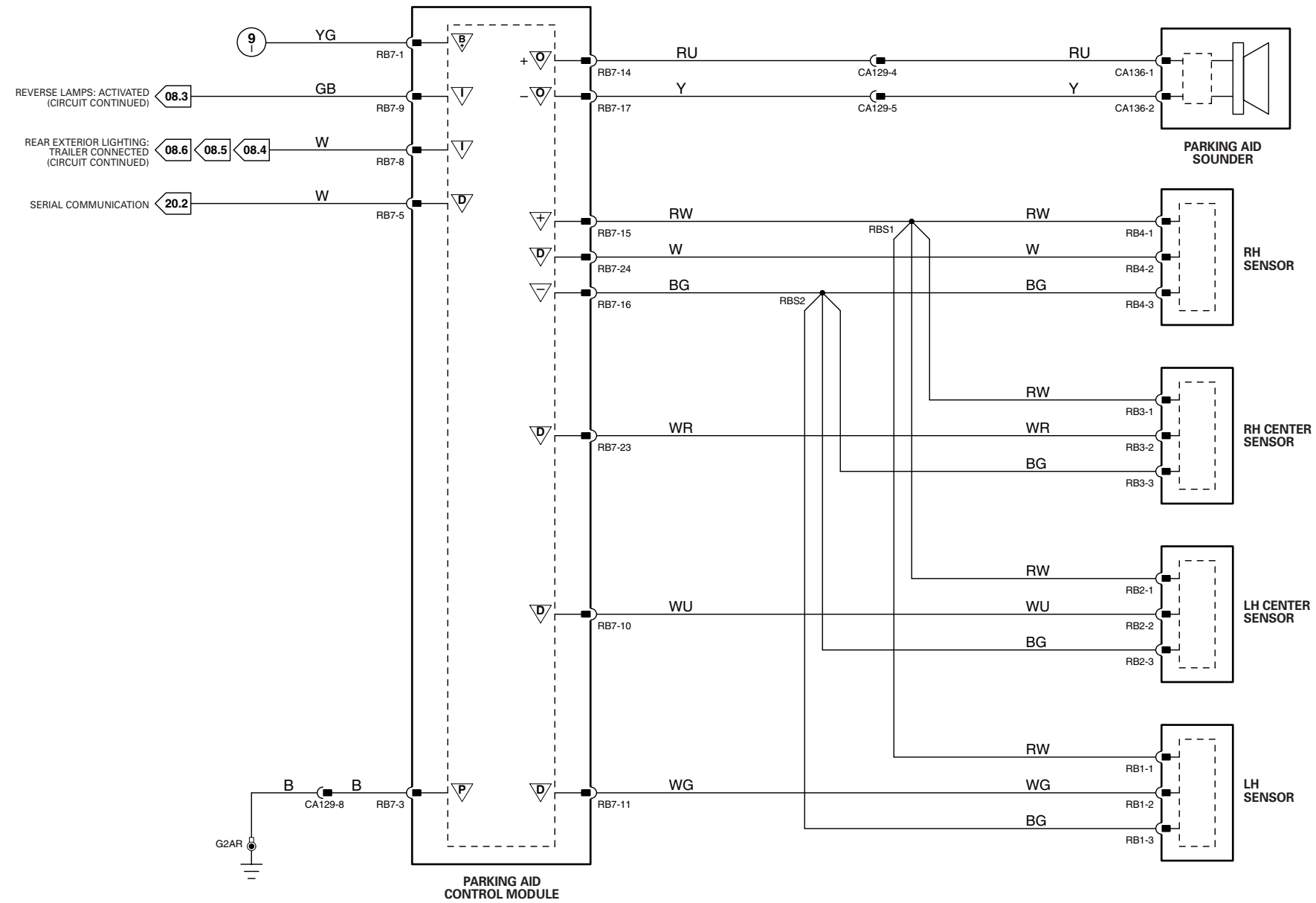


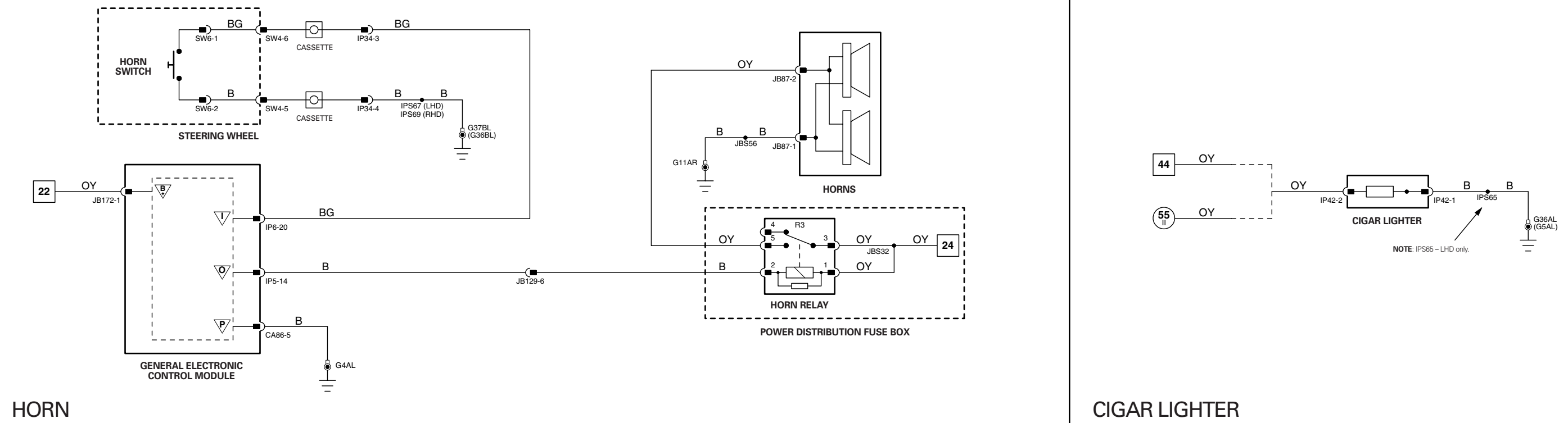
NOTE:

54 – Vehicles with Navigation and CD Autochanger.  
56 – Vehicles with Navigation only.



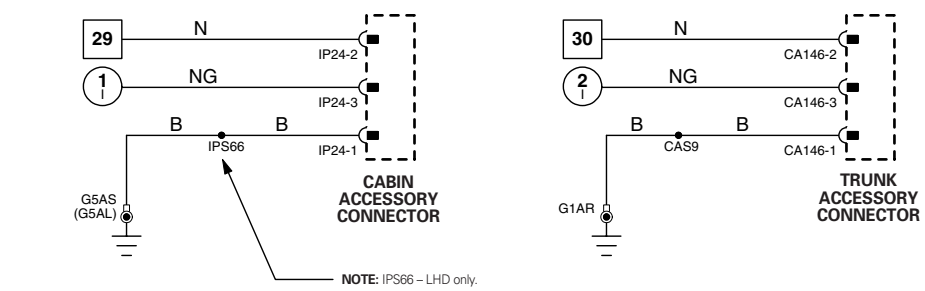




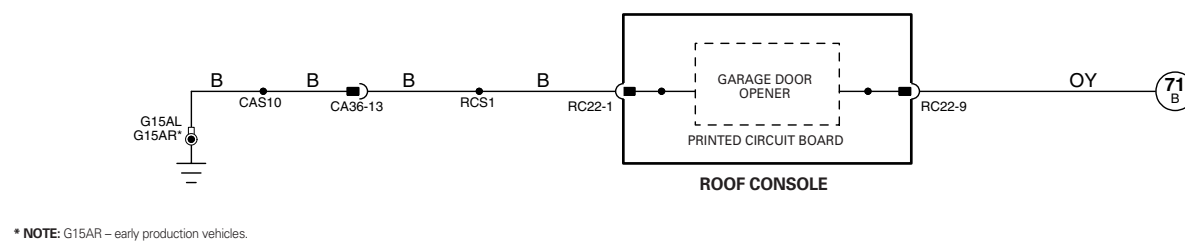


HORN

CIGAR LIGHTER

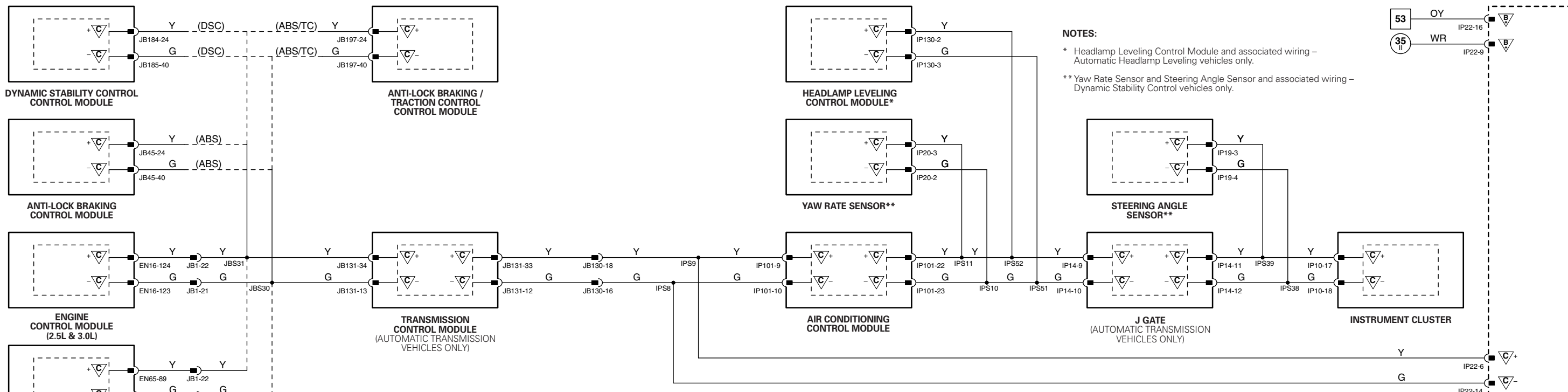


ACCESSORY CONNECTORS

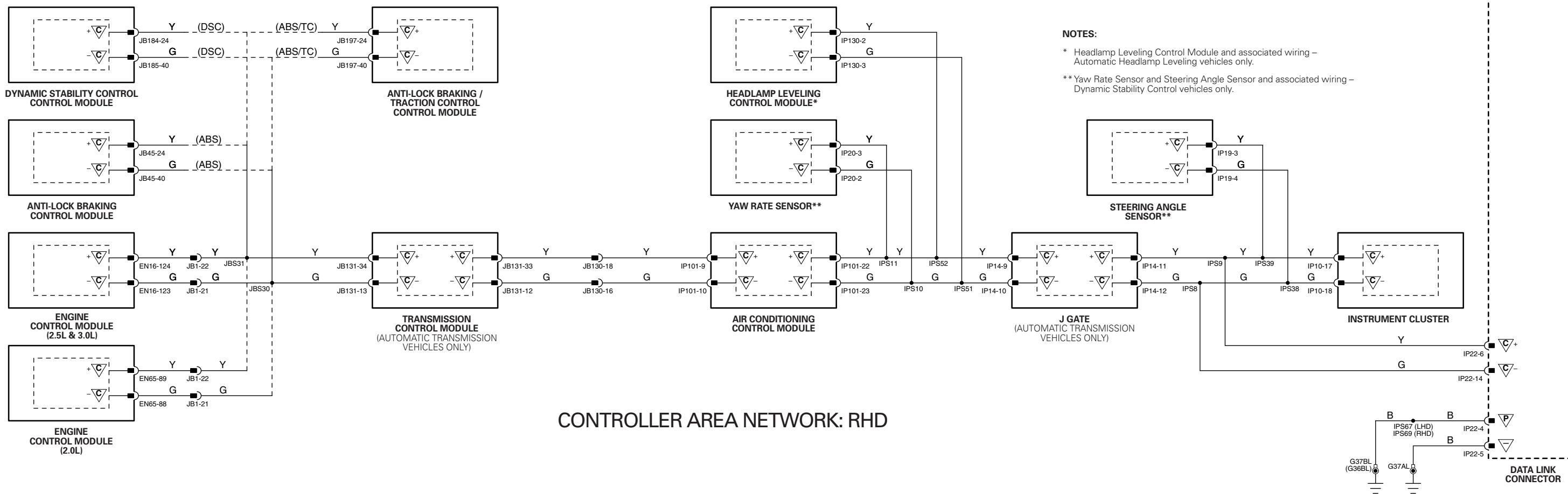


GARAGE DOOR OPENER

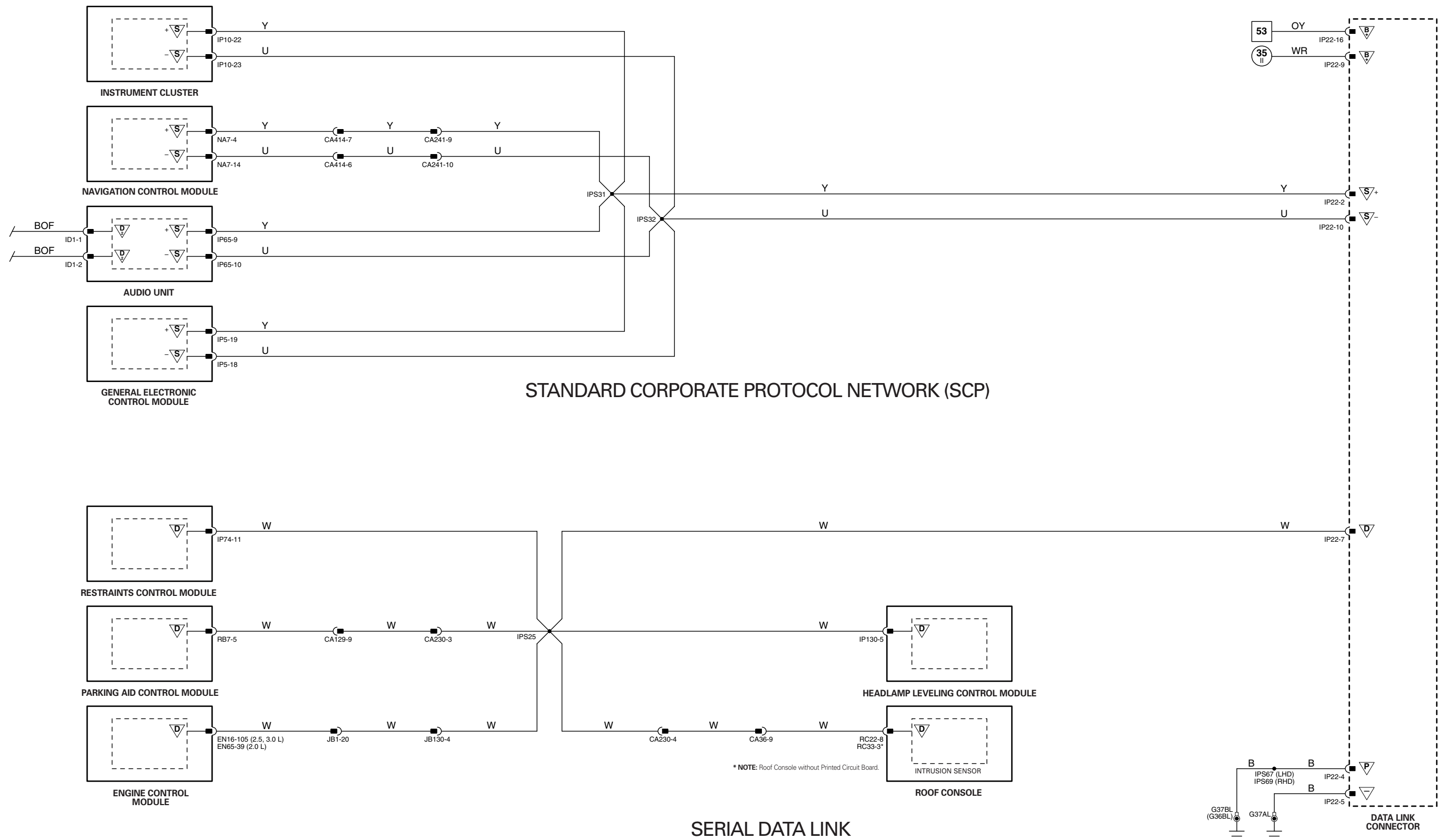


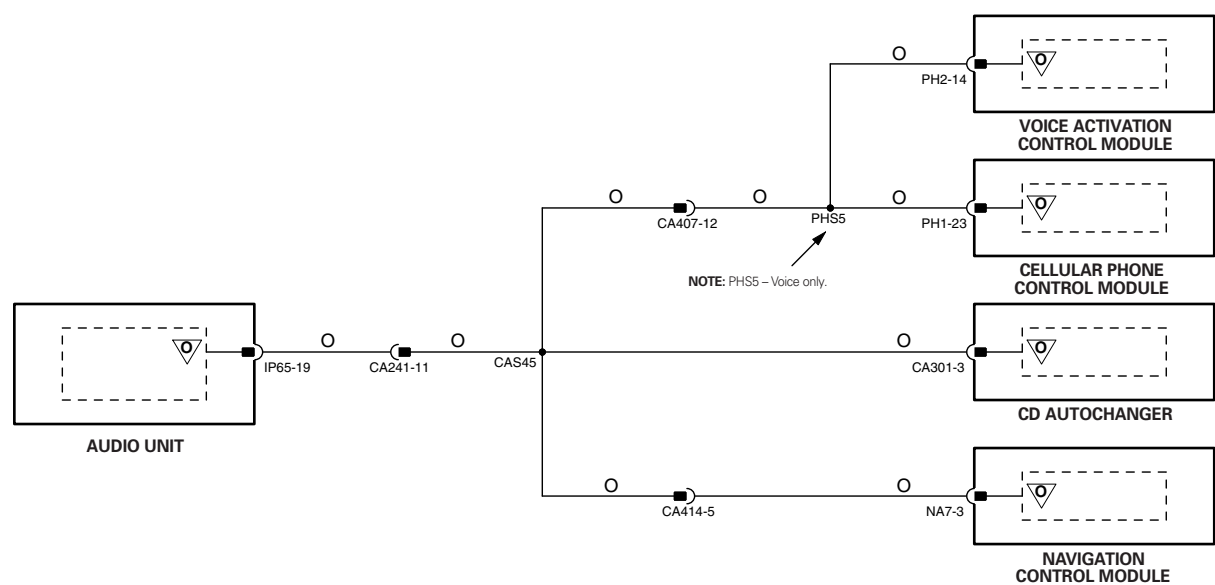


CONTROLLER AREA NETWORK: LHD

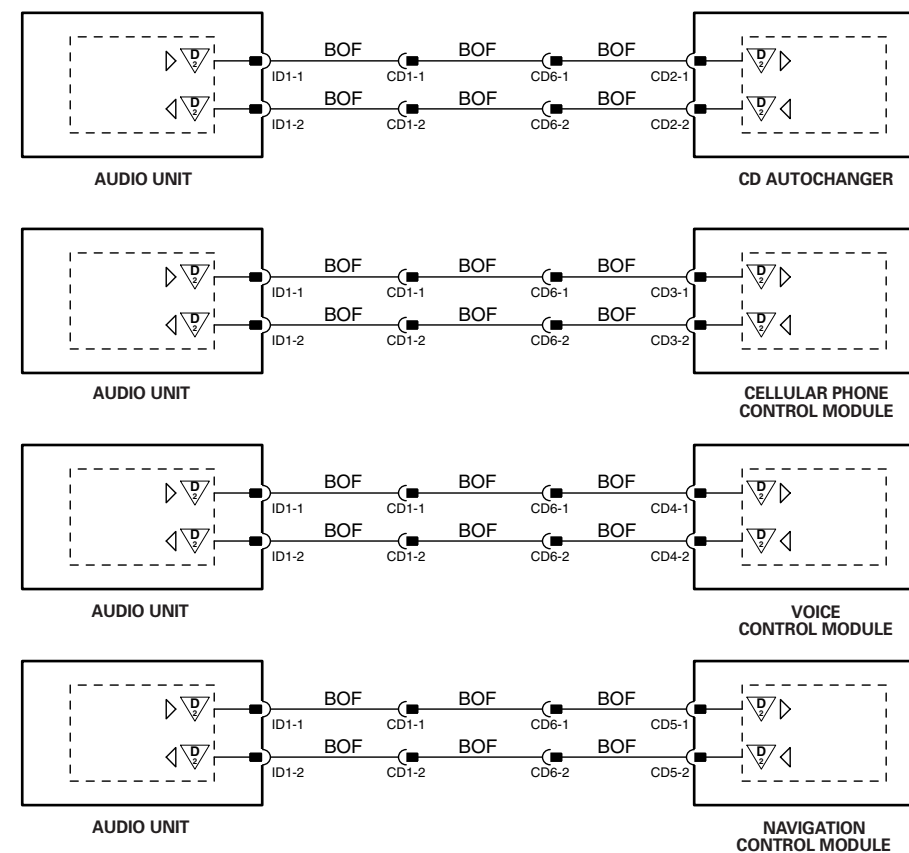


CONTROLLER AREA NETWORK: RHD

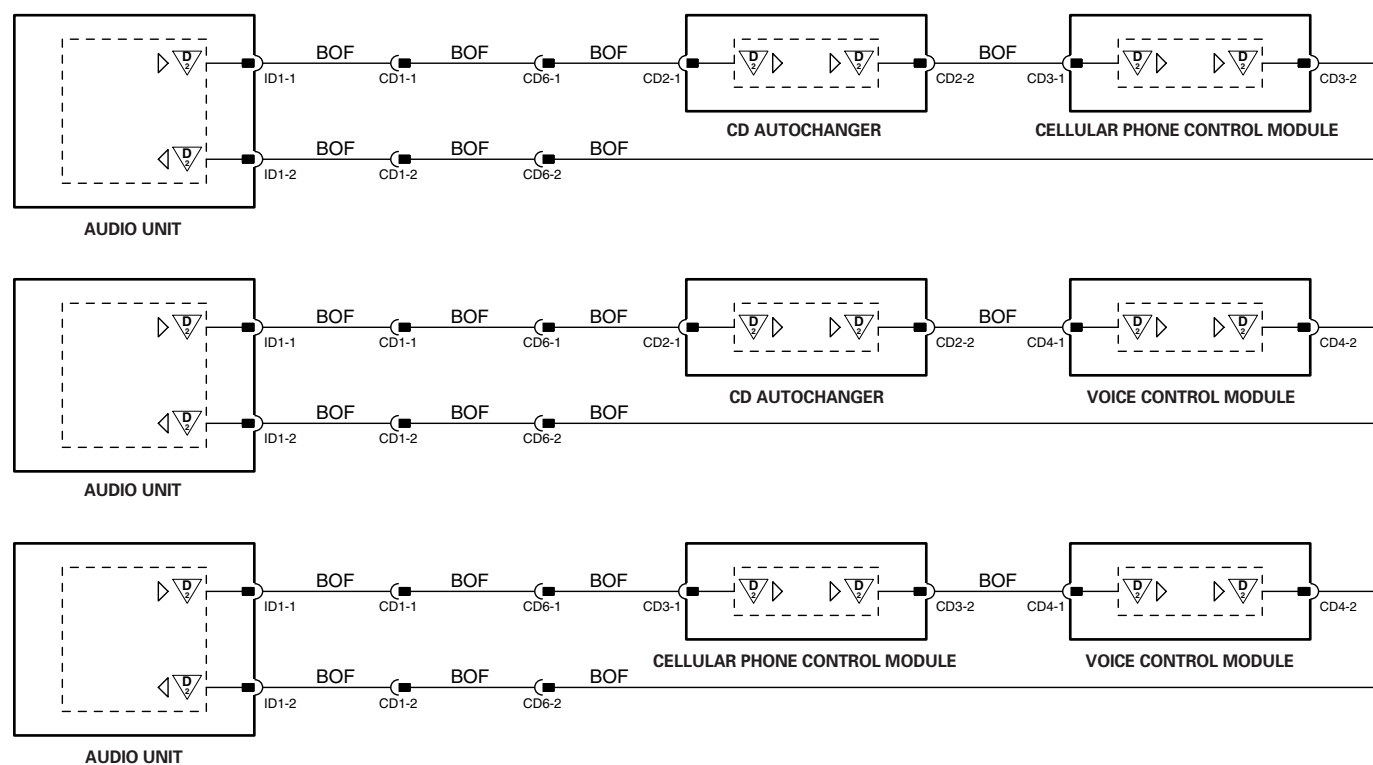




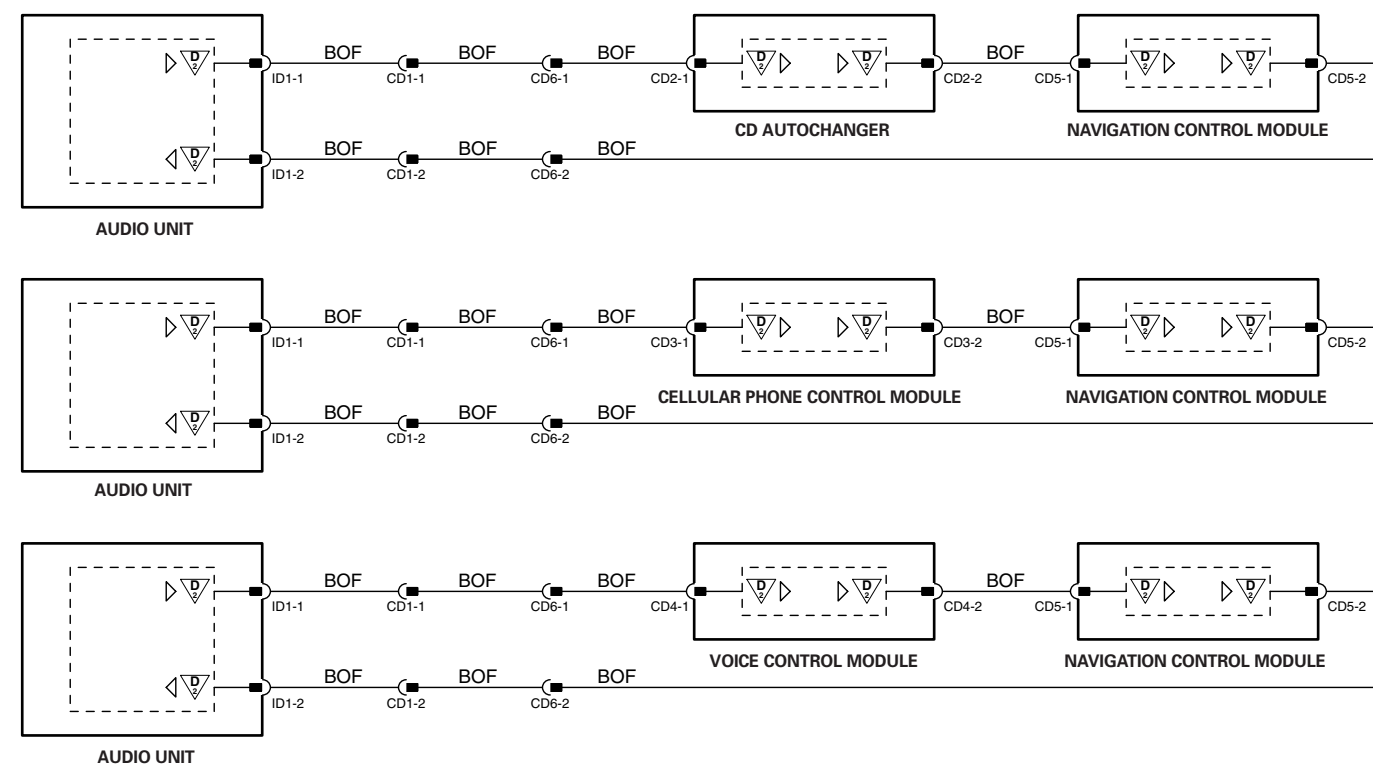
D2B NETWORK "WAKE-UP"



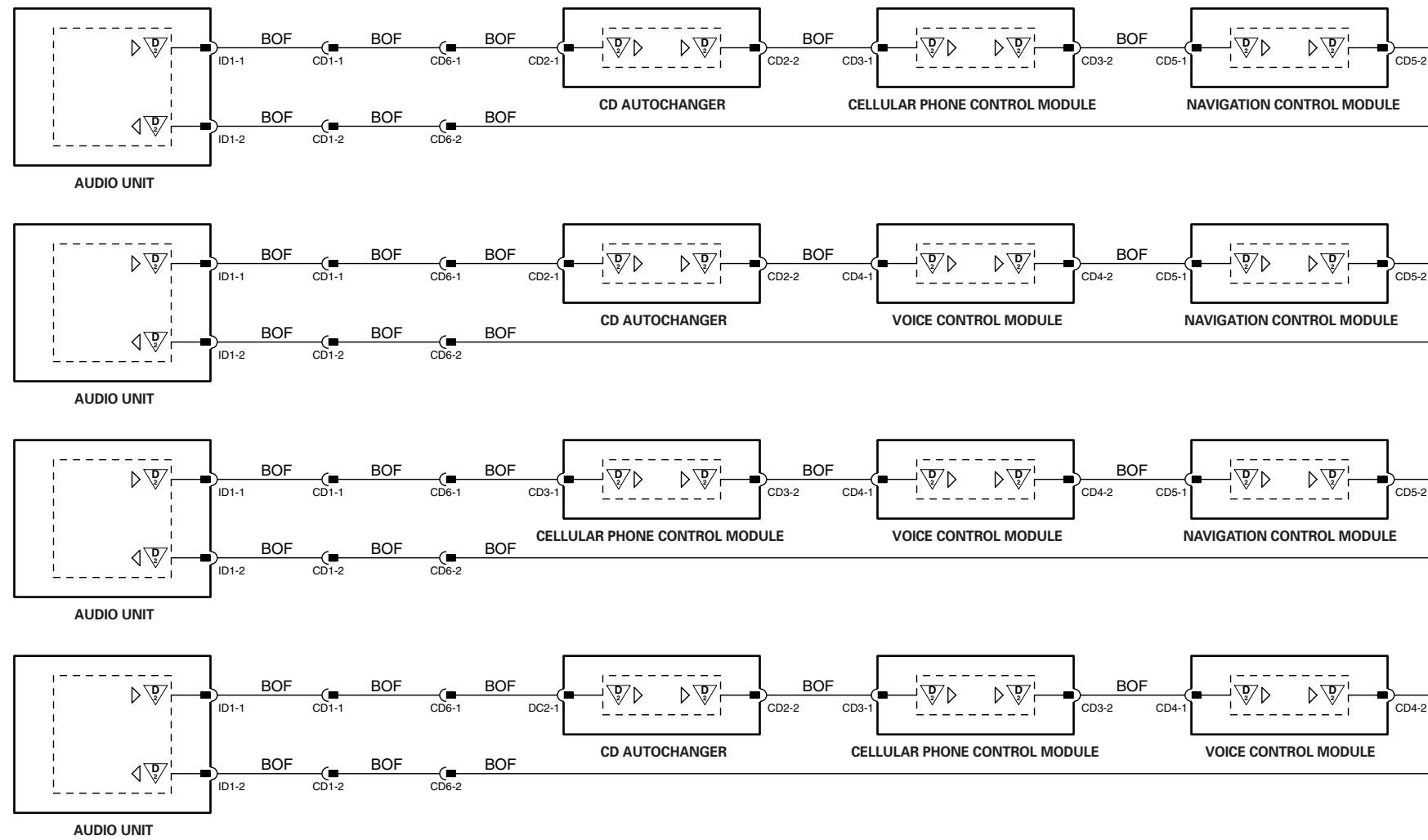
TWO-MODULE NETWORKS



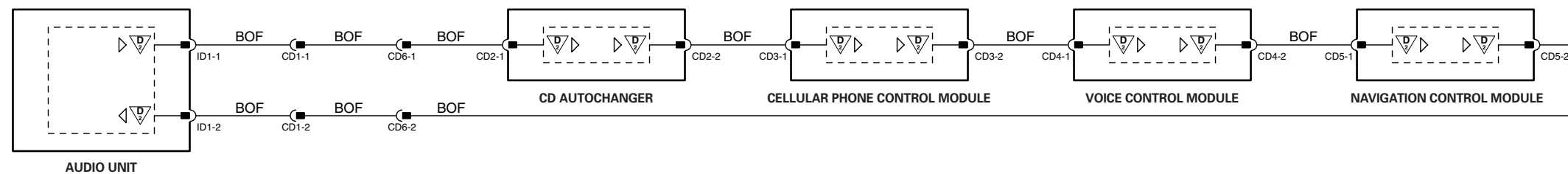
THREE-MODULE NETWORKS



NOTE: Figs. 20.3 and 20.4 show all possible combinations of D2B Networks.



### FOUR-MODULE NETWORKS



### FIVE-MODULE NETWORK

**NOTES:**

Figs. 20.3 and 20.4 show all possible combinations of D2B Networks.  
 Network "Wake-Up" Circuit – refer to Fig. 20.3.  
 D2B Network Diagnostics – refer to Fig. 20.2.



This Appendix contains a listing of CAN and SCP Network messages.

The following acronyms and abbreviations are used throughout this section:

|          |                                                                    |
|----------|--------------------------------------------------------------------|
| A/C      | Air Conditioning                                                   |
| ABS      | Anti Lock Braking System                                           |
| ABSCM    | Anti Lock Braking System Control Module                            |
| ABS/TCCM | Anti Lock Braking / Traction Control Control Module                |
| A/CCM    | Air Conditioning Control Module                                    |
| ACK      | Acknowledge                                                        |
| AIRCON   | Climate Control                                                    |
| AT Cmd   | Commands for configuring and controlling telecommunication devices |
| AUDIO    | Audio Unit                                                         |
| BIT      | Smallest element of data code (1 or 0)                             |
| BYTE     | Grouping of 8 bits (one alphanumeric character)                    |
| °C       | Degrees Centigrade                                                 |
| CAL      | Calibrate                                                          |
| CAN      | Controller Area Network                                            |
| CID      | CAN Identifier                                                     |
| CM       | Control Module                                                     |
| CONFIG   | Configure                                                          |
| D2B OPC  | Instructions for translating and routing data for D2B use          |
| D2B      | Fibre Optic Network                                                |
| DIAG     | Diagnostics                                                        |
| DSCCM    | Dynamic Stability Control Control Module                           |
| DTC      | Diagnostic Trouble Code                                            |
| ECM      | Engine Control Module                                              |
| °F       | Degrees Fahrenheit                                                 |
| FL       | Front Left                                                         |
| FR       | Front Right                                                        |
| Gateway  | Device that converts messages between different types of networks  |
| GECM     | General Electronic Control Module                                  |
| HLCM     | Headlight Levelling Control Module                                 |
| IC       | Instrument Cluster                                                 |
| IDB      | Identification Byte                                                |
| JGM      | J Gate Module                                                      |
| Lb. Ft.  | Pound Feet (Measure of Torque)                                     |
| LED      | Light Emitting Diode                                               |
| m        | Meter (length)                                                     |
| MIL      | Malfunction Indicator Lamp                                         |
| ml       | Millilitre                                                         |
| ms       | Millisecond                                                        |
| MSG      | Message                                                            |
| NCM      | Navigation Control Module                                          |
| Nm       | Newton Meter (Measure of Torque)                                   |
| OBD      | On Board Diagnostics                                               |
| OBD II   | On Board Diagnostics II                                            |
| ODO      | Odometer                                                           |
| Oz       | Ounce                                                              |
| PATS     | Passive Anti Theft System                                          |
| PECUS    | Programmable Electronic Control Units System                       |
| POS      | Positive (+)                                                       |
| PTT      | Push to Talk                                                       |
| RCC      | Climate Control                                                    |
| RL       | Rear Left                                                          |
| RPM      | Revolutions Per Minute                                             |
| RR       | Rear Right                                                         |
| SCP      | Standard Corporate Protocol Network                                |
| SMS      | Short Message Service for Mobile Communications                    |
| STM      | Switch to Test Mode                                                |
| SWS      | Steering Wheel Angle Sensor                                        |
| TCM      | Transmission Control Module                                        |
| VEMS     | JaguarNet                                                          |
| WDS      | World Diagnostic System                                            |
| YRS      | Yaw Rate Sensor                                                    |



## SCP Message Matrix

| No. | Message Name                                     | Source | Receivers |    |     |       |
|-----|--------------------------------------------------|--------|-----------|----|-----|-------|
|     |                                                  |        | GECM      | IC | NCM | AUDIO |
| 1   | All headlamp status: OFF                         | IC     | X         |    |     | X     |
| 2   | All headlamp status: ON                          | IC     | X         |    |     | X     |
| 3   | All park lamp status: OFF                        | IC     | X         |    | X   | X     |
| 4   | All park lamp status: ON                         | IC     | X         |    | X   | X     |
| 5   | All turn lamp Command: OFF                       | GECM   |           | X  |     |       |
| 6   | All turn lamp Command: ON                        | GECM   |           | X  |     |       |
| 7   | Cellular phone in use: NO (False)                | AUDIO  |           | X  |     |       |
| 8   | Cellular phone in use: YES (True)                | AUDIO  |           | X  |     |       |
| 9   | Trunk lid ajar switch: ACTIVE                    | GECM   |           | X  |     | X     |
| 10  | Trunk lid ajar switch: INACTIVE                  | GECM   |           | X  |     | X     |
| 11  | Display access confirmation status: ACCEPT       | IC     |           |    | X   | X     |
| 12  | Display access confirmation status: REJECT       | IC     |           |    | X   | X     |
| 13  | Display access display string: Clear Display     | AUDIO  |           | X  |     |       |
| 14  | Display access display string: Clear Display     | NCM    |           | X  |     |       |
| 15  | Display access display string: Overwrite Display | AUDIO  |           | X  |     |       |
| 16  | Display access display string: Overwrite Display | NCM    |           | X  |     |       |
| 17  | Display access terminate command                 | AUDIO  |           | X  |     |       |
| 18  | Display access terminate command                 | NCM    |           | X  |     |       |
| 19  | Download block to display command                | AUDIO  |           | X  |     |       |
| 20  | Download block to display command                | NCM    |           | X  |     |       |
| 21  | Driver's front door ajar switch status: ACTIVE   | GECM   |           | X  |     | X     |
| 22  | Driver's front door ajar switch status: INACTIVE | GECM   |           | X  |     | X     |
| 23  | Driver's rear door ajar switch status: ACTIVE    | GECM   |           | X  |     | X     |
| 24  | Driver's rear door ajar switch status: INACTIVE  | GECM   |           | X  |     | X     |
| 25  | Gateway A/CCM to Display                         | IC     |           |    | X   |       |
| 26  | Gateway A/CCM to Voice                           | IC     |           |    |     | X     |
| 27  | Gateway Audio to NCM                             | AUDIO  |           |    | X   |       |
| 28  | Gateway Audio to NCM (Multiframe)                | AUDIO  |           |    | X   |       |
| 29  | Gateway Display to A/CCM command                 | NCM    |           | X  |     |       |
| 30  | Gateway NCM to Audio                             | NCM    |           |    |     | X     |
| 31  | Gateway NCM to Phone: AT Cmd frame 1             | NCM    |           |    |     | X     |



SCP Message Matrix

| No. | Message Name                                        | Source | Receivers |    |     |       |
|-----|-----------------------------------------------------|--------|-----------|----|-----|-------|
|     |                                                     |        | GECM      | IC | NCM | AUDIO |
| 32  | Gateway NCM to Phone: AT Cmd frame 2                | NCM    |           |    |     | X     |
| 33  | Gateway NCM to Phone: D2B OPC frame 1               | NCM    |           |    |     | X     |
| 34  | Gateway NCM to Phone: D2B OPC frame 2               | NCM    |           |    |     | X     |
| 35  | Gateway NCM to SMS: SMS Data frame 1                | NCM    |           |    |     | X     |
| 36  | Gateway NCM to SMS: SMS Data frame 2                | NCM    |           |    |     | X     |
| 37  | Gateway NCM to VEMS: AT Cmd frame 1                 | NCM    |           |    |     | X     |
| 38  | Gateway NCM to VEMS: AT Cmd frame 2                 | NCM    |           |    |     | X     |
| 39  | Gateway NCM to VEMS: D2B OPC frame 1                | NCM    |           |    |     | X     |
| 40  | Gateway NCM to VEMS: D2B OPC frame 2                | NCM    |           |    |     | X     |
| 41  | Gateway NCM to Voice                                | NCM    |           |    |     | X     |
| 42  | Gateway Phone to NCM: AT Cmd frame 1                | AUDIO  |           |    | X   |       |
| 43  | Gateway Phone to NCM: AT Cmd frame 2                | AUDIO  |           |    | X   |       |
| 44  | Gateway Phone to NCM: D2B OPC frame 1               | AUDIO  |           |    | X   |       |
| 45  | Gateway Phone to NCM: D2B OPC frame 2               | AUDIO  |           |    | X   |       |
| 46  | Gateway SMS to NCM: SMS Data frame 1                | AUDIO  |           |    | X   |       |
| 47  | Gateway SMS to NCM: SMS Data frame 2                | AUDIO  |           |    | X   |       |
| 48  | Gateway VEMS to NCM: AT Cmd frame 1                 | AUDIO  |           |    | X   |       |
| 49  | Gateway VEMS to NCM: AT Cmd frame 2                 | AUDIO  |           |    | X   |       |
| 50  | Gateway VEMS to NCM: D2B OPC frame 1                | AUDIO  |           |    | X   |       |
| 51  | Gateway VEMS to NCM: D2B OPC frame 2                | AUDIO  |           |    | X   |       |
| 52  | Gateway voice to A/CCM command                      | AUDIO  |           | X  |     |       |
| 53  | Gateway voice to NCM                                | AUDIO  |           |    | X   |       |
| 54  | Hood ajar switch: ACTIVE                            | GECM   |           | X  |     | X     |
| 55  | Hood ajar switch: INACTIVE                          | GECM   |           | X  |     | X     |
| 56  | Ignition switch position w / initialize status: NO  | IC     | X         |    |     | X     |
| 57  | Ignition switch position w / initialize status: YES | IC     | X         |    |     | X     |
| 58  | Left side turn signal Command: OFF                  | GECM   |           | X  |     |       |
| 59  | Left side turn signal Command: ON                   | GECM   |           | X  |     |       |
| 60  | Low fuel level status: NO                           | IC     |           |    |     | X     |
| 61  | Low fuel level status: YES                          | IC     |           |    |     | X     |
| 62  | Low washer fluid warning: OFF                       | IC     | X         |    |     |       |



## SCP Message Matrix

| No. | Message Name                                              | Source | Receivers |    |     |       |
|-----|-----------------------------------------------------------|--------|-----------|----|-----|-------|
|     |                                                           |        | GECM      | IC | NCM | AUDIO |
| 63  | Low washer fluid warning: ON                              | IC     | X         |    |     |       |
| 64  | Network bus wake up Command: YES (True)                   | GECM   |           |    |     |       |
| 65  | Network bus wake up Command: YES (True)                   | IC     |           |    |     |       |
| 66  | Odometer rolling count status                             | IC     |           |    | X   |       |
| 67  | Parking brake switch status: ACTIVE                       | IC     |           |    |     | X     |
| 68  | Parking brake switch status: INACTIVE                     | IC     |           |    |     | X     |
| 69  | Passenger's front door ajar switch status: ACTIVE         | GECM   |           | X  |     | X     |
| 70  | Passenger's front door ajar switch status: INACTIVE       | GECM   |           | X  |     | X     |
| 71  | Passenger's rear door ajar switch status: ACTIVE          | GECM   |           | X  |     | X     |
| 72  | Passenger's rear door ajar switch status: INACTIVE        | GECM   |           | X  |     | X     |
| 73  | Remote control button status: Button 7 (PTT) ACTIVE       | AUDIO  |           |    | X   |       |
| 74  | Remote control button status: Button 6 (VOL+) ACTIVE      | AUDIO  |           |    | X   |       |
| 75  | Remote control button status: Button 5 (VOL) ACTIVE       | AUDIO  |           |    | X   |       |
| 76  | Remote control button status: Button 4 (Select) ACTIVE    | AUDIO  |           |    | X   |       |
| 77  | Remote control button status: Button 3 (Seek UP) ACTIVE   | AUDIO  |           |    | X   |       |
| 78  | Remote control button status: Button 2 (Seek DOWN) ACTIVE | AUDIO  |           |    | X   |       |
| 79  | Remote control button status: All buttons INACTIVE        | AUDIO  |           |    | X   |       |
| 80  | Request all headlamp status                               | GECM   |           | X  |     |       |
| 81  | Request all headlamp status                               | AUDIO  |           | X  |     |       |
| 82  | Request all park lamp status                              | GECM   |           | X  |     |       |
| 83  | Request all park lamp status                              | NCM    |           | X  |     |       |
| 84  | Request all park lamp status                              | AUDIO  |           | X  |     |       |
| 85  | Request trunk ajar switch status                          | IC     | X         |    |     |       |
| 86  | Request trunk ajar switch status                          | AUDIO  | X         |    |     |       |
| 87  | Request driver's front door ajar switch status            | IC     | X         |    |     |       |
| 88  | Request driver's front door ajar switch status            | AUDIO  | X         |    |     |       |
| 89  | Request driver's rear door ajar switch status             | IC     | X         |    |     |       |
| 90  | Request driver's rear door ajar switch status             | AUDIO  | X         |    |     |       |
| 91  | Request hood ajar switch status                           | IC     | X         |    |     |       |
| 92  | Request hood ajar switch status                           | AUDIO  | X         |    |     |       |
| 93  | Request ignition switch position w / Initialize status    | GECM   |           | X  |     |       |





SCP Message Matrix

| No. | Message Name                                           | Source | Receivers |    |     |       |
|-----|--------------------------------------------------------|--------|-----------|----|-----|-------|
|     |                                                        |        | GECM      | IC | NCM | AUDIO |
| 94  | Request ignition switch position w / initialize status | AUDIO  |           | X  |     |       |
| 95  | Request ignition switch position w / initialize status | NCM    |           | X  |     |       |
| 96  | Request low fuel level status                          | NCM    |           | X  |     |       |
| 97  | Request low washer fluid warning command               | GECM   |           | X  |     |       |
| 98  | Request parking brake switch status                    | AUDIO  |           | X  |     |       |
| 99  | Request passenger's front door ajar switch status      | IC     | X         |    |     |       |
| 100 | Request passenger's front door ajar switch status      | AUDIO  | X         |    |     |       |
| 101 | Request passenger's rear door ajar switch status       | IC     | X         |    |     |       |
| 102 | Request passenger's rear door ajar switch status       | AUDIO  | X         |    |     |       |
| 103 | Request seat belt warning status                       | IC     | X         |    |     |       |
| 104 | Request vehicle Security System status                 | IC     | X         |    |     |       |
| 105 | Request vehicle configuration module programmed status | IC     | X         |    |     |       |
| 106 | Request vehicle Inertia Switch status                  | GECM   |           | X  |     |       |
| 107 | Request vehicle Security key status                    | GECM   |           | X  |     |       |
| 108 | Request vehicle Security key status                    | AUDIO  |           | X  |     |       |
| 109 | Right side turn signal turn lamp Command: OFF          | GECM   |           | X  |     |       |
| 110 | Right side turn signal turn lamp Command: ON           | GECM   |           | X  |     |       |
| 111 | Seat belt warning Command: OFF                         | GECM   |           | X  |     |       |
| 112 | Seat belt warning Command: ON                          | GECM   |           | X  |     |       |
| 113 | Terminate display confirmation status: ACCEPT          | IC     |           |    | X   | X     |
| 114 | Terminate display confirmation status: REJECT          | IC     |           |    | X   | X     |
| 115 | Terminate display definition command                   | AUDIO  |           | X  |     |       |
| 116 | Terminate display definition command                   | NCM    |           | X  |     |       |
| 117 | Time of day (w / mode) command                         | NCM    |           |    |     | X     |
| 118 | Time of day (w / mode) status                          | AUDIO  |           |    | X   |       |
| 119 | Transit mode Command: ACTIVE                           | EXTERN | X         | X  |     |       |
| 120 | Transit mode Command: INACTIVE                         | IC     | X         |    |     |       |
| 121 | Transmission PRNDL range selected status               | IC     |           |    |     | X     |
| 122 | Vehicle Security System status                         | GECM   |           | X  |     |       |
| 123 | Vehicle configuration module programmed status: NO     | GECM   |           | X  |     |       |
| 124 | Vehicle configuration module programmed status: NO     | AUDIO  |           | X  |     |       |



## SCP Message Matrix

| No. | Message Name                                        | Source | Receivers |    |     |       |
|-----|-----------------------------------------------------|--------|-----------|----|-----|-------|
|     |                                                     |        | GECM      | IC | NCM | AUDIO |
| 125 | Vehicle configuration module programmed status: YES | GECM   |           | X  |     |       |
| 126 | Vehicle Inertia Switch status: ACTIVE (Crashed)     | IC     | X         |    |     |       |
| 127 | Vehicle Inertia Switch status: INACTIVE (OK)        | IC     | X         |    |     |       |
| 128 | Vehicle Security key status                         | IC     | X         |    |     | X     |
| 129 | Vehicle speed high resolution status                | IC     | X         |    |     | X     |
| 130 | VACM control mode status: OFF                       | AUDIO  | X         | X  |     |       |
| 131 | VACM control mode status: ON                        | AUDIO  | X         | X  |     |       |
| 132 | VACM control mode status: OFF                       | NCM    | X         | X  |     |       |
| 133 | VACM control mode status: ON                        | NCM    | X         | X  |     |       |
| 134 | VACM training mode A/B entry                        | NCM    |           |    |     | X     |





## CAN Message Matrix

| No.  | Message Name                  | Usage                                                                                                          | Source   | Receivers |          |       |     |     |    |       |      |     |     |     |      |  |  |
|------|-------------------------------|----------------------------------------------------------------------------------------------------------------|----------|-----------|----------|-------|-----|-----|----|-------|------|-----|-----|-----|------|--|--|
|      |                               |                                                                                                                |          | ABSCM     | ABS/TCCM | DSCCM | ECM | TCM | IC | A/CCM | HLCM | JGM | SWS | YRS | DIAG |  |  |
| 097h | CAN INDICATED ENGINE TORQUE   | Estimated available torque: current engine speed, load, ignition timing and fuelling intervention not included | ECM      | X         | X        | X     | X   | X   | X  |       |      |     |     |     |      |  |  |
| 097h | CAN ENGINE FRICTION TORQUE    | Estimated torque loss caused by: engine friction, engine driven accessories                                    | ECM      | X         | X        | X     | X   | X   | X  |       |      |     |     |     |      |  |  |
| 097h | CAN ACTUAL ENGINE TORQUE      | Estimated available torque: current engine speed, load ignition timing and fuelling                            | ECM      | X         | X        | X     | X   | X   | X  |       |      |     |     |     |      |  |  |
| 097h | CAN DRIVER DEMAND TORQUE      | Estimated available torque: current throttle pedal position, no intervention included                          | ECM      | X         | X        | X     | X   | X   | X  |       |      |     |     |     |      |  |  |
| 0C9h | CAN TORQUE REDUCTION REQUEST  | Torque reduction requested for shift energy management (uses ignition intervention only)                       | TCM      |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0C9h | CAN TRANSMISSION TORQUE LIMIT | Engine torque limit with current transmission fault                                                            | TCM      |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0C9h | CAN TORQUE CONVERTER SLIP     | Percentage of torque converter slip                                                                            | TCM      | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |
| 0C9h | CAN TRANSMISSION INPUT SPEED  | Transmission input shaft RPM                                                                                   | TCM      |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0C9h | CAN TRANSMISSION OUTPUT SPEED | Transmission output shaft RPM                                                                                  | TCM      |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN TRACTION SHIFT MAP        | Use Traction Shift Map                                                                                         | ABSCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |
| 0FBh | CAN TRACTION SHIFT MAP        | Use Traction Shift Map                                                                                         | ABS/TCCM |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |
| 0FBh | CAN TRACTION SHIFT MAP        | Use Traction Shift Map                                                                                         | DSCCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |
| 0FBh | CAN OBD II ABS CLEAR ACK      | Confirms ABS OBD II DTCs cleared                                                                               | ABSCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN OBD II ABS CLEAR ACK      | Confirms ABS OBD II DTCs cleared                                                                               | ABS/TCCM |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN OBD II ABS CLEAR ACK      | Confirms DSC OBD II DTCs cleared                                                                               | DSCCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODE MIL STATUS | Indicates flagged DTC requires MIL illumination                                                                | ABSCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODE MIL STATUS | Indicates flagged DTC requires MIL illumination                                                                | ABS/TCCM |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODE MIL STATUS | Indicates flagged DTC requires MIL illumination                                                                | DSCCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS STATUS                | Indicates when ABS system is functioning                                                                       | ABSCM    |           |          |       |     |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS STATUS                | Indicates when ABS system is functioning                                                                       | ABS/TCCM |           |          |       |     |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS STATUS                | Indicates when ABS system is functioning                                                                       | DSCCM    |           |          |       |     |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN VEHICLE REFERENCE SPEED   | Vehicle speed (reference wheel circumference X wheel rotation speed)                                           | ABSCM    |           |          |       | X   | X   | X  | X     |      |     |     |     |      |  |  |
| 0FBh | CAN VEHICLE REFERENCE SPEED   | Vehicle speed (reference wheel circumference X wheel rotation speed)                                           | ABS/TCCM |           |          |       | X   | X   | X  | X     |      |     |     |     |      |  |  |
| 0FBh | CAN VEHICLE REFERENCE SPEED   | Vehicle speed (reference wheel circumference X wheel rotation speed)                                           | DSCCM    |           |          |       | X   | X   | X  | X     |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODES           | Indicates ABS DTCs to store in the ECM                                                                         | ABSCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODES           | Indicates ABS DTCs to store in the ECM                                                                         | ABS/TCCM |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |
| 0FBh | CAN ABS FAULT CODES           | Indicates ABS DTCs to store in the ECM                                                                         | DSCCM    |           |          |       | X   |     |    |       |      |     |     |     |      |  |  |





## CAN Message Matrix

| No.  | Message Name                     | Usage                                                                                                     | Source | Receivers |          |       |     |     |    |       |      |     |     |     |      |  |  |   |
|------|----------------------------------|-----------------------------------------------------------------------------------------------------------|--------|-----------|----------|-------|-----|-----|----|-------|------|-----|-----|-----|------|--|--|---|
|      |                                  |                                                                                                           |        | ABSCM     | ABS/TCCM | DSCCM | ECM | TCM | IC | A/CCM | HLCM | JGM | SWS | YRS | DIAG |  |  |   |
| 1F5h | CAN FUEL LEVEL RAW 1             | Fuel level sender 1 signal (before signal conditioning)                                                   | IC     |           |          |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 1F5h | CAN FUEL LEVEL RAW 2             | Fuel level sender 2 signal (before signal conditioning)                                                   | IC     |           |          |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN GEAR POSITION ACTUAL         | Transmission gear positions: N, 1, 2, 3, 4, 5, R, or shift in progress                                    | TCM    | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN GEAR POSITION SELECTED       | Transmission rotary switch positions: P, R, N, D, 4, 3, 2, or selector between positions signals          | TCM    |           |          |       |     |     | X  | X     |      |     |     |     | X    |  |  |   |
| 3E9h | CAN TRANSMISSION SHIFT MAP       | TCM shift map in use signal: Normal, Sport, Hot, Gradient, Traction, Manual, or Cruise                    | TCM    | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN TRANSMISSION OIL TEMPERATURE | Transmission fluid temperature -40 °C to 214 °C. Note: will not exceed 150 °C                             | TCM    |           |          |       |     | X   |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN TRANSMISSION MALFUNCTION     | Transmission malfunction data, also activate transmission warning signals                                 | TCM    | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN TCM CONFIG FLAG              | TCM PECUS programmed YES / NO                                                                             | TCM    |           |          |       |     |     |    | X     |      |     |     |     |      |  |  |   |
| 3E9h | CAN TORQUE CONVERTER STATUS      | Torque converter clutch disengaged, engaged or constant slip                                              | TCM    | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN GEAR SELECTION FAULT         | CAN GEAR POSITION SELECTED signal validity                                                                | TCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  | X |
| 3E9h | CAN IDLE NEUTRAL CONTROL         | Idle neutral control in / not in progress                                                                 | TCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN PERFORMANCE MODE INDICATION  | Switch Performance Mode LED ON / OFF                                                                      | TCM    |           |          |       |     |     |    |       |      |     |     |     |      |  |  | X |
| 3E9h | CAN TCM FAULT CODE MIL STATUS    | Indicates flagged DTC requires MIL illumination                                                           | TCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN OBD II TCM CLEAR ACK         | Confirms transmission OBD DTCs cleared                                                                    | TCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN TRANSMISSION FAULT CODES     | Indicates transmission fault codes to store ECM                                                           | TCM    |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 3E9h | CAN GEAR POSITION TARGET         | Next actual transmission gear position (for traction control)                                             | TCM    | X         | X        |       |     |     |    |       |      |     |     |     |      |  |  |   |
| 41Ah | CAN PRESSURE TRANSDUCER          | A/C refrigerant pressure, for fan control and diagnostics                                                 | TCM    |           |          |       |     |     |    |       | X    |     |     |     |      |  |  |   |
| 41Ah | CAN ENGINE INTAKE TEMPERATURE    | Engine intake air temperature: 40 °C to 80 °C (40 °F to 176 °F)                                           | ECM    |           |          |       |     |     |    |       | X    |     |     |     |      |  |  |   |
| 41Ah | CAN A/C CLUTCH INHIBIT STATUS    | Confirms A/C compressor clutch ON / OFF                                                                   | ECM    |           |          |       |     |     |    |       |      | X   |     |     |      |  |  |   |
| 41Ah | CAN ELECTRICAL LOAD MANAGEMENT   | Inhibit: heated rear window, windshield, wiper park area, automatic heated windshield.                    | ECM    |           |          |       |     |     |    |       |      | X   |     |     |      |  |  |   |
| 41Ah | CAN COOLING FAN FEEDBACK         | Actual cooling fan speed. Response to COOLING FAN REQUEST message                                         | ECM    |           |          |       |     |     |    |       |      |     | X   |     |      |  |  |   |
| 441h | CAN AMBIENT TEMPERATURE          | Outside air temperature 40 °C to 80 °C (40 °F to 176 °F)                                                  | A/CCM  |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 441h | CAN COMPRESSOR TORQUE            | Predicted A/C compressor torque in 100 ms                                                                 | A/CCM  |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 441h | CAN A/C COMMANDS                 | Request A/C compressor ON / OFF. Maximum heat required: YES / NO                                          | A/CCM  |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |
| 441h | CAN A/C STATUS                   | Indicates: windshield, rear door mirrors, and windshield wiper park area heater ON / OFF and blower speed | A/CCM  |           |          |       |     |     | X  |       |      |     |     |     |      |  |  |   |



